



U.S. Department  
of Transportation  
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Administration

# General Aviation Activity and Avionics Survey

Calendar Year 1991



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Office of Aviation Policy, Plans  
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U.S. Department  
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Administration

# General Aviation Activity and Avionics Survey

Calendar Year 1991

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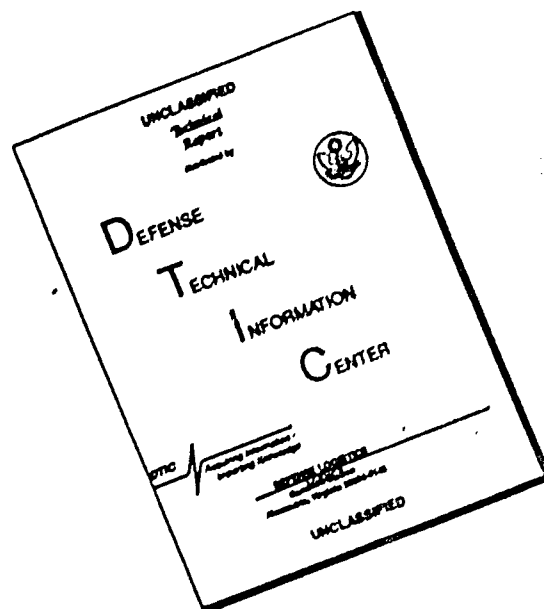
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**Airport Activity Statistics of Certificated Route Air Carriers** is a joint publication of the Federal Aviation Administration (FAA) and the Research and Special Programs Administration (RSPA). RSPA furnishes airport activity data on certificated route air carriers; FAA organizes/publishes it. Included in the data are passenger enplanements, tons of enplaned freight and mail. Scheduled/nonscheduled service shown by airport and carrier are also included. Breakdown of data includes departures/enplanements/cargo/mail by airport, carrier and type of operation, and type of aircraft.

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**Census of U.S. Civil Aircraft** is an annual publication that includes statistical data on the registered civil fleet, air carrier aircraft, and general aviation aircraft--both registered and active, detailed reports for general aviation aircraft by owner's state and county, and registered aircraft by make and model.

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**FAA Statistical Handbook of Aviation** is a convenient source for historical data. It presents statistical information pertaining to the Federal Aviation Administration, the National Airspace System, Airports, Airport Activity, U.S. Civil Air Carrier Fleet, U.S. Civil Air Carrier Operating Data, Airmen, General Aviation Aircraft, Aircraft Accidents, Aeronautical Production and Import/Export.

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Person to contact: ..... Patricia Beardsley

**General Aviation Activity and Avionics Survey** is an annual report that presents the results of the general aviation activity and avionics survey conducted to obtain information on the activity and avionics of the U.S. registered general aviation aircraft fleet. The report contains estimated flying time, landings, fuel consumption, lifetime airframe hours, avionics, and engine hours of the active general aviation aircraft by manufacturer/model group, aircraft type, state and region of based aircraft, and primary use.

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**General Aviation Pilot and Aircraft Activity Survey** includes data on the type and source of aircraft flight plan and weather information services, trip length in time and distance, pilot age and certification, estimates of total 1989 general aviation operations, fuel consumption and aircraft miles flown. The survey was conducted from June through September 1990 by the Federal Aviation Administration with the assistance of the Civil Air Patrol.

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Person to contact: ..... Shung-Chai Huang

**Rotorcraft Activity Survey** presents the results of a special one-time survey. The report contains breakdowns of active rotorcraft, annual flight hours, average flight hours, and other statistics by rotorcraft type, manufacturer/model group, region and state of based aircraft, and primary use. Also included are law enforcement and public use rotorcraft, lifetime airframe hours, engine hours, estimated miles flown, and estimated number of landings.

Edition: ..... Calendar Year 1989

Order from: ..... Statistics and Forecast Branch, or  
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Person to contact: ..... Patricia Beardsley

**U.S. Civil Airmen Statistics** is an annual study of detailed airmen statistics. It contains statistics on pilots and nonpilots and the number of certificates issued.

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Person to contact: ..... Patricia Carter

## PREFACE

This report presents the results of the 1991 General Aviation Activity and Avionics (GAAA) Survey and is prepared by the Statistics and Forecast Branch, Planning Analysis Division, Office of Aviation Policy, Plans, and Management Analysis (APO-110).

Since the conduct of the first GAAA Survey Report in 1977, the GAAA Survey data have not been adjusted to account for nonrespondents (aircraft owners selected as part of the survey sample but who chose not to complete and return the form) because telephone surveys of nonrespondents conducted in 1977, 1978, and 1979 did not show any significant differences or inconsistencies between respondents' and nonrespondents' replies. In 1980, the telephone survey was discontinued as a cost-saving measure.

The GAAA Survey response rate has fallen from over 70 percent prior to 1980 to 65 percent in most years since 1983, and the number of postmaster returns has greatly increased. Therefore, the FAA decided to conduct a telephone survey of nonrespondents to the 1990 GAAA mail Survey. This telephone survey found that there is a significant difference in the ratio of active aircraft and inactive aircraft between mail respondents and telephone respondents. Therefore, the results of the telephone survey were integrated into the 1991 GAAA Survey in order to more accurately estimate general aviation active aircraft and hours flown. Appendix A, Methodology for the 1991 General Aviation Activity and Avionics Survey, provides a brief discussion of the 1990 telephone survey of nonrespondents results and the methodology used to integrate these results into the 1991 GAAA Survey.

The report is divided into eight, easy-to-read chapters. Each chapter contains text and corresponding figures and tables, which follow each chapter's text.

The outline of this report is as follows:

Chapter I, Introduction, briefly discusses the purpose, background and scope of the General Aviation Activity and Avionics Survey Report. It also highlights the important findings of the survey.

Chapter II, Common General Aviation Activity Measures, presents information on the general aviation population size, the number of active aircraft, total hours flown and average hours flown. Statistics on another measurement of general aviation activity, number of landings, are also given by total, local flight and cross country flight.

Chapter III, Primary Use, looks at the growth of active aircraft and of total hours flown by the general aviation fleet. The major uses of the general aviation aircraft and the number of nautical miles flown by primary use are also looked at in detail.

Chapter IV, **Flying Conditions**, presents statistics on the conditions under which the general aviation population flies. Detailed statistics on the number of hours flown under Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC) under Instrument Flight Rules (IFR) during the day and night are given.

Chapter V, **Fuel Consumption**, gives information on the types of fuel consumed, the amount used, and average fuel consumption rate of the general aviation fleet.

Chapter VI, **Airframe Hours and Engine Activity**, provides data on the age of the general aviation fleet--average airframe hours per active aircraft and the number of engines and average hours per engine.

Chapter VII, **Avionics**, presents various figures and tables on selected avionics equipment capabilities of the general aviation aircraft fleet under communications, transponders, navigation, precision approach, and guidance and control equipment categories.

Chapter VIII, **National Airspace System (NAS) Capability Groups Based on Avionics**, provides numerous figures and tables on aircraft avionic capabilities by the two classifications of capability groups, hierarchical and nonhierarchical. These two groups were developed to provide a framework for relating airborne avionics equipment (discussed in Chapter VII, Avionics) to aircraft capability to perform in the NAS.

Appendix A, **Methodology for the 1991 General Aviation Activity and Avionics Survey**, provides a detailed description of the GAAA Survey, its history, the survey sample design, and a definition and explanation of "standard error," a statistical measure reported in each table. Also included is a brief discussion of the 1990 telephone survey of nonrespondents results and the methodology used to integrate these results into the 1991 GAAA Survey.

Appendix B and Appendix C list SDR aircraft group name and FAA Manufacturer/Model Codes, and Service Difficulty Reporting (SDR) Engine Group Name and FAA Manufacturer/Model Codes, respectively. Appendix D contains a list of common acronyms, as well as a glossary of aviation terms found in this report.

Suggestions and comments about this report are welcome and will be given careful consideration in planning future editions.

# TABLE OF CONTENTS

	<u>Page</u>
ORDERING INFORMATION.....	i
MANAGEMENT STANDARDS AND STATISTICS DIVISION PUBLICATION INFORMATION...	ii
PREFACE.....	vi
FAA REGIONAL BOUNDARIES.....	xiv
I. INTRODUCTION.....	1-1
II. COMMON GENERAL AVIATION ACTIVITY MEASURES.....	2-1
2.1 1991 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by Aircraft Type.....	2-7
2.2 1991 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by SDR Aircraft Manufacturer/Model Group.....	2-9
2.3 1991 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by Region of Based Aircraft.....	2-28
2.4 1991 General Aviation Population Size, Active Aircraft, Total Flight Hours and Average Flight Hours by State of Based Aircraft.....	2-29
2.5 1991 General Aviation Total Number of Landings by Region of Based Aircraft by Aircraft Type.....	2-32
2.6 1991 General Aviation Number of Landings in Local Flight by Region of Based Aircraft by Aircraft Type.....	2-34
2.7 1991 General Aviation Number of Landings in Cross Country Flight by Region of Based Aircraft by Aircraft Type.....	2-36
III. PRIMARY USE.....	3-1
3.1 1991 General Aviation Number of Aircraft by Primary Use by Aircraft Type.....	3-4
3.2 1991 General Aviation Total Hours Flown by Primary Use by Aircraft Type.....	3-7



	<u>Page</u>
<b>III. PRIMARY USE (Cont'd.)</b>	
3.3 1991 General Aviation Nautical Miles Flown by Primary Use by Aircraft Type.....	3-10
<b>IV. FLYING CONDITIONS.....</b>	4-1
4.1 1991 General Aviation Active Aircraft and Total Hours Flown by Day/Night by Aircraft Type.....	4-5
4.2 1991 General Aviation Active Aircraft and Total Hours Flown Under VMC Conditions by Day/Night by Aircraft Type...	4-7
4.3 1991 General Aviation Active Aircraft and Total Hours Flown Under IFR Flight Plan in IMC Conditions by Day/Night by Aircraft Type.....	4-9
4.4 1991 General Aviation Active Aircraft and Total Hours Flown by Day/Night by Region of Based Aircraft.....	4-11
4.5 1991 General Aviation Active Aircraft and Total Hours Flown Under VMC Conditions by Day/Night by Region of Based Aircraft.....	4-12
4.6 1991 General Aviation Active Aircraft and Total Hours Flown Under IFR Flight Plan in IMC Conditions by Day/Night by Region of Based Aircraft.....	4-13
4.7 1991 General Aviation Active Aircraft and Total Hours Flown by Day/Night by SDR Manufacturer/Model Group.....	4-14
4.8 1991 General Aviation Active Aircraft and Total Hours Flown Under IMC Conditions (Based on IFR Flight Plan Hours) and VMC Conditions (Based on Total Hours Flown) by SDR Manufacturer/Model Group.....	4-32
4.9 1991 General Aviation Active Aircraft and Total Hours Flown by Flight Plan by Aircraft Type.....	4-50
<b>V. FUEL CONSUMPTION.....</b>	5-1
5.1 1991 General Aviation Average Fuel Consumption Rate and Total Fuel Consumed by Aircraft Type.....	5-6
5.2 1991 General Aviation Average Fuel Consumption Rate and Total Fuel Consumed by Fuel Grade by Aircraft Type.....	5-8
5.3 1991 General Aviation Average Fuel Consumption Rate and Total Fuel Consumed by SDR Aircraft Manufacturer/Model Group.....	5-11

	<u>Page</u>
<b>VI. AIRFRAME HOURS AND ENGINE ACTIVITY.....</b>	<b>6-1</b>
6.1 1991 General Aviation Total and Average Airframe Hours Per Active Aircraft by Aircraft Type.....	6-3
6.2 1991 General Aviation Total and Average Airframe Hours Per Active Aircraft by SDR Aircraft Manufacturer/Model Group...	6-5
6.3 1991 Number of Engines on Active General Aviation Aircraft and Average Hours per Engine by Engine SDR Manufacturer/ Model Group.....	6-24
<b>VII. AVIONICS.....</b>	<b>7-1</b>
7.1 1991 General Aviation Aircraft with VHF Communications Equipment by Aircraft Type.....	7-8
7.2 1991 General Aviation Aircraft with VHF Communications Equipment by Primary Use.....	7-11
7.3 1991 General Aviation Aircraft with VHF Communications Equipment by Region of Based Aircraft.....	7-13
7.4 1991 General Aviation Aircraft with VHF Communications Equipment by State of Based Aircraft.....	7-15
7.5 1991 General Aviation Aircraft with Precision Approach and Transponder Equipment by Aircraft Type.....	7-22
7.6 1991 General Aviation Aircraft with Precision Approach and Transponder Equipment by Primary Use.....	7-25
7.7 1991 General Aviation Aircraft with Precision Approach and Transponder Equipment by Region of Based Aircraft.....	7-27
7.8 1991 General Aviation Aircraft with Precision Approach and Transponder Equipment by State of Based Aircraft.....	7-29
7.9 1991 General Aviation Aircraft with Basic, Long Range, and Other Navigation Equipment by Aircraft Type.....	7-36
7.10 1991 General Aviation Aircraft with Basic, Long Range, and Other Navigation Equipment by Primary Use.....	7-45
7.11 1991 General Aviation Aircraft with Basic, Long Range, and Other Navigation Equipment by Region of Based Aircraft.....	7-51
7.12 1991 General Aviation Aircraft with Basic, Long Range, and Other Navigation Equipment by State of Based Aircraft.....	7-57

**VII. AVIONICS (Cont'd.)**

7.13	1991 General Aviation Aircraft with Guidance and Control Equipment by Aircraft Type.....	7-78
7.14	1991 General Aviation Aircraft with Guidance and Control Equipment by Primary Use.....	7-81
7.15	1991 General Aviation Aircraft with Guidance and Control Equipment by Region of Based Aircraft.....	7-83
7.16	1991 General Aviation Aircraft with Guidance and Control Equipment by State of Based Aircraft.....	7-85
7.17	1991 General Aviation Aircraft Equipped with an Electrical System and/or Has an Emergency Locator Transmitter by Aircraft Type.....	7-92
7.18	1991 General Aviation Aircraft Equipped with an Electrical System and/or Has an Emergency Locator Transmitter by Primary Use.....	7-95
7.19	1991 General Aviation Aircraft Equipped with an Electrical System and/or Has an Emergency Locator Transmitter by Region of Based Aircraft.....	7-97
7.20	1991 General Aviation Aircraft Equipped with an Electrical System and/or Has an Emergency Locator Transmitter by State of Based Aircraft.....	7-99
7.21	1991 General Aviation Active Aircraft and Total Hours Flown Under IFR Flight Plans by Transponder Equipped Aircraft by Aircraft Type.....	7-106

**VIII. NATIONAL AIRSPACE SYSTEM (NAS) CAPABILITY GROUPS BASED ON AVIONICS.....**

		8-1
8.1	1991 General Aviation Aircraft Hierarchical Capability Groups by Aircraft Type.....	8-7
8.2	1991 General Aviation Aircraft Hierarchical Capability Groups by Age of Aircraft.....	8-11
8.3	1991 General Aviation Aircraft Hierarchical Capability Groups by Total Flight Hour Groups.....	8-14
8.4	1991 General Aviation Aircraft Hierarchical Capability Groups by Primary Use.....	8-17

**VIII. NATIONAL AIRSPACE SYSTEM (NAS) CAPABILITY GROUPS BASED ON  
AVIONICS (Cont'd.)**

8.5	1991 General Aviation Aircraft Hierarchical Capability Groups by Region of Based Aircraft.....	8-20
8.6	1991 General Aviation Aircraft Hierarchical Capability Groups by Nonhierarchical Capability Groups.....	8-23
8.7	1991 General Aviation Aircraft Nonhierarchical Capability Groups by Aircraft Type.....	8-26
8.8	1991 General Aviation Aircraft Nonhierarchical Capability Groups by Age of Aircraft.....	8-30
8.9	1991 General Aviation Aircraft Nonhierarchical Capability Groups by Total Flight Hour Groups.....	8-33
8.10	1991 General Aviation Aircraft Nonhierarchical Capability Groups by Primary Use.....	8-36
8.11	1991 General Aviation Aircraft Nonhierarchical Capability Groups by Region of Based Aircraft.....	8-39
 <b>APPENDIX A. Methodology for the 1991 General Aviation Activity and Avionics Survey.....</b>		
		<b>A-1</b>
1.	Overview.....	A-1
2.	Survey Coverage.....	A-3
3.	Survey Method.....	A-4
	A.1 Summary of Response Information.....	A-4
4.	Sample Design.....	A-5
	A.2 Sample and Population Distribution by Aircraft Type.	A-7
	A.3 Confidence of Interval Estimates.....	A-9
	A.4 Response Rate by Aircraft Type.....	A-11
5.	Adjustments Based on a Survey of Nonrespondents.....	A-11
 <b>APPENDIX B. SDR Aircraft Group Name - FAA Manufacturer/Model Codes.....</b>		
		<b>B-1</b>
 <b>APPENDIX C. SDR Engine Group Name - FAA Manufacturer/Model Codes.....</b>		
		<b>C-1</b>
 <b>APPENDIX D. Common Acronyms and Glossary.....</b>		
		<b>D-1</b>

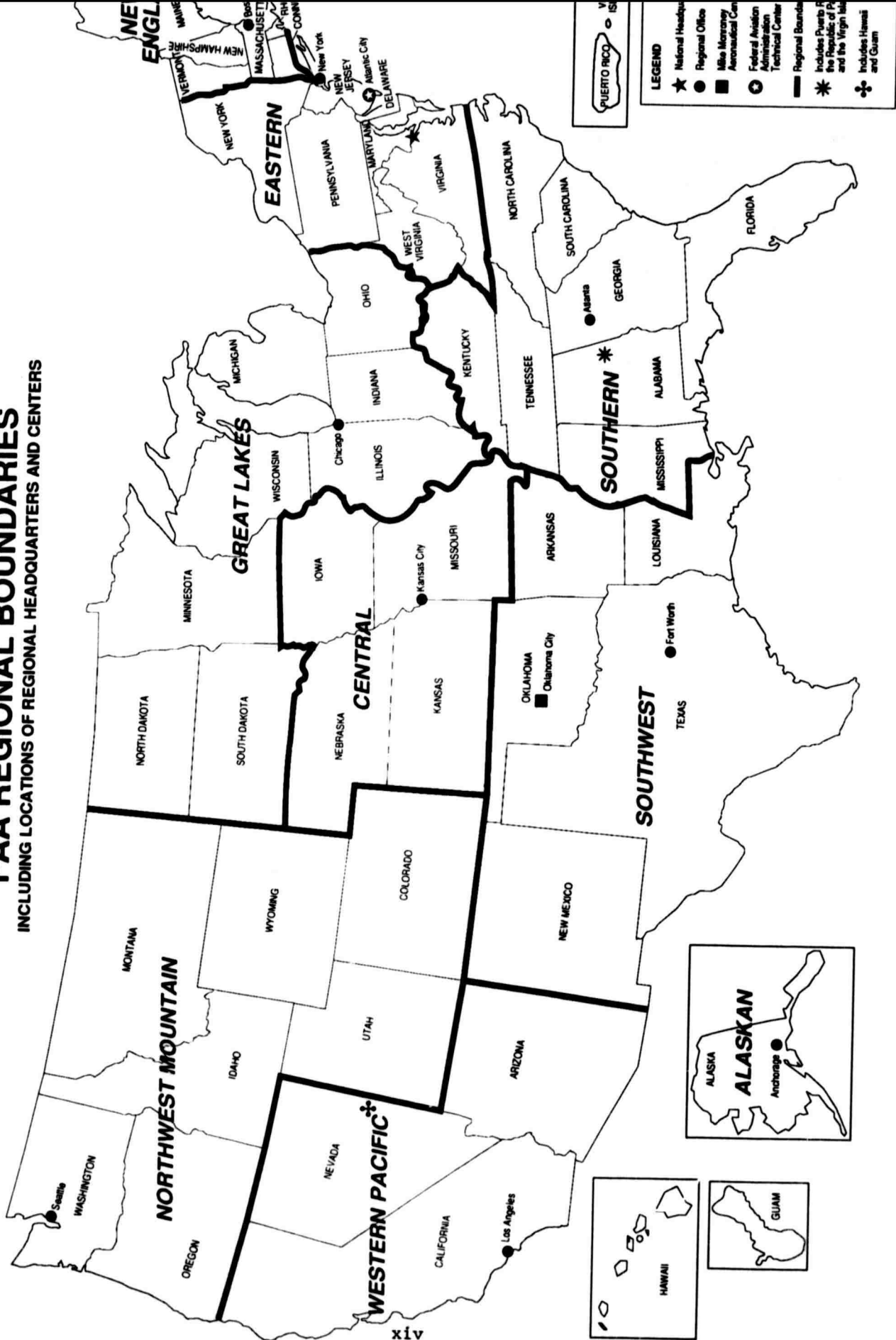
# LISTING OF FIGURES

<u>Figure</u>		<u>Page</u>
2.1	1991 GENERAL AVIATION ACTIVE AIRCRAFT BY AIRCRAFT TYPE.....	2-4
2.2	1991 GENERAL AVIATION TOTAL FLIGHT HOURS BY AIRCRAFT TYPE..	2-5
2.3	1991 GENERAL AVIATION LANDINGS BY AIRCRAFT TYPE.....	2-6
3.1	1991 GENERAL AVIATION NUMBER OF ACTIVE AIRCRAFT AND TOTAL HOURS BY PRIMARY USE.....	3-3
4.1	1991 GENERAL AVIATION TOTAL HOURS FLOWN BY WEATHER AND LIGHT CONDITIONS.....	4-3
4.2	1991 GENERAL AVIATION TOTAL HOURS FLOWN BY FLIGHT PLAN.....	4-4
5.1	1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATES (GALLONS PER HOUR) BY AIRCRAFT TYPE.....	5-3
5.2	1991 GENERAL AVIATION ESTIMATED FUEL CONSUMPTION BY AIRCRAFT TYPE.....	5-4
5.3	1991 GENERAL AVIATION FUEL CONSUMPTION BY FUEL GRADE.....	5-5
6.1	1991 GENERAL AVIATION AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT BY AIRCRAFT TYPE.....	6-2
7.1	AVIONICS EQUIPMENT IN THE 1991 GENERAL AVIATION AIRCRAFT FLEET.....	7-5
8.1	HIERARCHICAL CAPABILITY GROUPS.....	8-4
8.2	NONHIERARCHICAL CAPABILITY GROUPS.....	8-6
A.1	1991 GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY QUESTIONNAIRE.....	A-2
A.2	FIRST 1991 GAAA SURVEY COVER LETTER.....	A-15
A.3	SECOND 1991 GAAA SURVEY COVER LETTER.....	A-17
A.4	THIRD 1991 GAAA SURVEY COVER LETTER.....	A-19

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

# FAA REGIONAL BOUNDARIES

## INCLUDING LOCATIONS OF REGIONAL HEADQUARTERS AND CENTERS



## CHAPTER I

### INTRODUCTION

This report presents the results of the annual General Aviation Activity and Avionics (GAAA) Survey. The GAAA Survey provides information about the activities and avionics equipment of the general aviation aircraft fleet. The information obtained from the GAAA Survey enables the FAA to monitor the general aviation fleet so that FAA can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the general aviation fleet, and implement measures to ensure the safe operation of all aircraft in the airspace.

The term "general aviation" is not always defined in the same way from aviation publication to aviation publication. For the purposes of the GAAA Survey, the term "general aviation" excludes what is commonly known as the "airlines." The general aviation aircraft represented in this report, then, range in complexity from simple gliders and balloons to the more sophisticated four engine turbojets. These aircraft are used for a variety of purposes such as air taxi, agricultural, executive/business, personal, research, instructional, recreational, and even sport fishing--to name a few.

Each year, the information for the GAAA Survey is collected using a statistically designed sample survey. The sampled aircraft represent every state and FAA region and all of the major manufacturer/model groups of aircraft. In past years' surveys, the survey data were not adjusted to account for nonrespondents (aircraft owners selected as part of the survey sample but who chose not to complete and return the form), since telephone surveys of nonrespondents conducted in 1977, 1978, and 1979 did not show any significant differences or inconsistencies between respondents' and nonrespondents' replies. In 1980, the telephone survey was discontinued as a cost-saving measure.

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Following are some of the significant GAAA Survey findings for 1991:

GENERAL:

- o The estimated 198,475 active general aviation aircraft in the fleet flew more than 30 million hours in 1991, with an average annual flight time per aircraft of 149 hours. These active aircraft represent approximately 75 percent of the registered general aviation fleet, which is 5 percent lower than was estimated in 1990.
- o The general aviation active aircraft undertook nearly 96 million operations (takeoffs and landings). About 69 percent were in local flight versus 31 percent in cross country flight.
- o The general aviation aircraft fleet flew more than 3.9 million nautical miles during 1991.
- o Approximately 87 percent of general aviation flying took place during the day.
- o The results of the 1991 GAAA Survey show that 45 percent of the hours flown by the general aviation fleet were flown with no flight plan, and an additional 7 percent of hours flown were under some other/unknown flight plan. Only 25 percent of the aircraft hours were flown VFR/DVFR, and 23 percent were flown IFR.
- o An estimated 930 million gallons of fuel were consumed by the active general aviation fleet during 1991. Approximately 38 percent of the total fuel consumed during 1991 was aviation gasoline, and 62 percent was jet fuel.
- o Almost 38 percent of the 1991 active general aviation fleet flew by instrument flight rules (IFR).

GEOGRAPHIC:

- o The three regions with the greatest number of active aircraft were: the Western-Pacific region with 18.4 percent, the Great Lakes region with 17.5 percent, and the Southern region with 16.3 percent. The region with the smallest number of active aircraft was the Alaskan Region, which constituted 3.3 percent of the active general aviation fleet.
- o States represented by the largest number of active general aviation aircraft include California with 14.7 percent, Texas with 8.2 percent, and Florida with 6.2 percent.



#### AIRCRAFT TYPE AND PRIMARY USE:

- o Rotorcraft, turboprop, and turbojet aircraft types averaged 452, 308, and 290 flight hours per aircraft, respectively. In contrast, active fixed wing piston aircraft, which make up 78 percent of the active fleet and represent 68 percent of the total flight time, averaged only 137 flight hours per aircraft.
- o Turbine rotorcraft had the most average hours flown per aircraft, 592. The aircraft types with the least number of average hours flown were the "other" piston, averaging 41 hours, and aircraft types in the "other" category (e.g., gliders and balloons), which averaged 61 hours flown per aircraft.
- o The most popular primary use category of the active general aviation aircraft is personal use, with 58 percent of the active fleet falling into this category. The next closest primary use category was business, with 16 percent, followed by instructional use with 9 percent.

#### AVIONICS:

- o The percent of the general aviation fleet with two-way VHF communication equipment and transponder equipment was 83 and 70 percent, respectively.
- o The majority of the general aviation fleet, 55 percent, had at least one component of an instrument landing system, such as a localizer, marker beacon, or glide slope.
- o Approximately 78 percent of the general aviation aircraft had some form of navigation equipment, such as VOR navigation equipment, long range navigation equipment or some other type of navigation equipment.
- o The percent of the general aviation fleet with guidance and control equipment was 31 percent in 1991.
- o Nearly 83 percent of the general aviation fleet had an electrical system, and 30 percent had an emergency locator transmitter (ELT).

## CHAPTER II

### COMMON GENERAL AVIATION ACTIVITY MEASURES

Several aviation activity measures are used to indicate growth trends and activity levels in the general aviation fleet. Some common aviation activity measures of interest are the size of the general aviation population, the number of active aircraft, the total flight hours, average flight hours per aircraft, and number of landings.

This chapter presents seven tables and three figures on these common aviation activity measures. The first four tables, Tables 2.1-2.4, give estimates of the general aviation population size, number of active aircraft, total flight hours and average flight hours in four different ways, by: 1) Aircraft Type, 2) Service Difficulty Reporting (SDR) Aircraft Manufacturer/Model Group, 3) Region of Based Aircraft, and 4) State of Based Aircraft.

Table 2.2 breaks down the number of estimated active aircraft and their respective average hours flown figures by Service Difficulty Reporting (SDR) aircraft manufacturer/model group. Appendix B lists these SDR aircraft group names and FAA manufacturer/model codes. The 13 "Other" categories listed in the beginning of Table 2.2 refer to all the general aviation aircraft which belong to a manufacturer/model group which has fewer than 20 aircraft. The different "other" categories stand for:

- 1 Fixed Wing Piston, 1 Engine, 1-3 Seats.
- 2 Fixed Wing Piston, 1 Engine, 4+ Seats.
- 3 Fixed Wing Piston, 2 Engine, 1-6 Seats.
- 4 Fixed Wing Piston, 2 Engine, 7+ Seats.
- 5 Fixed Wing Piston, Other.
- 6 Fixed Wing Turboprop, 2 Engines, 1-12 Seats.
- 7 Fixed Wing Turboprop, 2 Engines, 13+ Seats.
- 8 Fixed Wing Turboprop, Other.
- 9 Fixed Wing Turbojet, 2 Engines.
- 10 Fixed Wing Turbojet, Other.
- 11 Rotorcraft, Piston.
- 12 Rotorcraft, Turbine.
- 13 Other Aircraft.

Tables 2.5-2.7 contain data on the number of aircraft landings by the general aviation population. Estimates of the total number of landings, the number of landings in local flight and the number of landings in cross country flight by aircraft type and by region of based aircraft are provided.

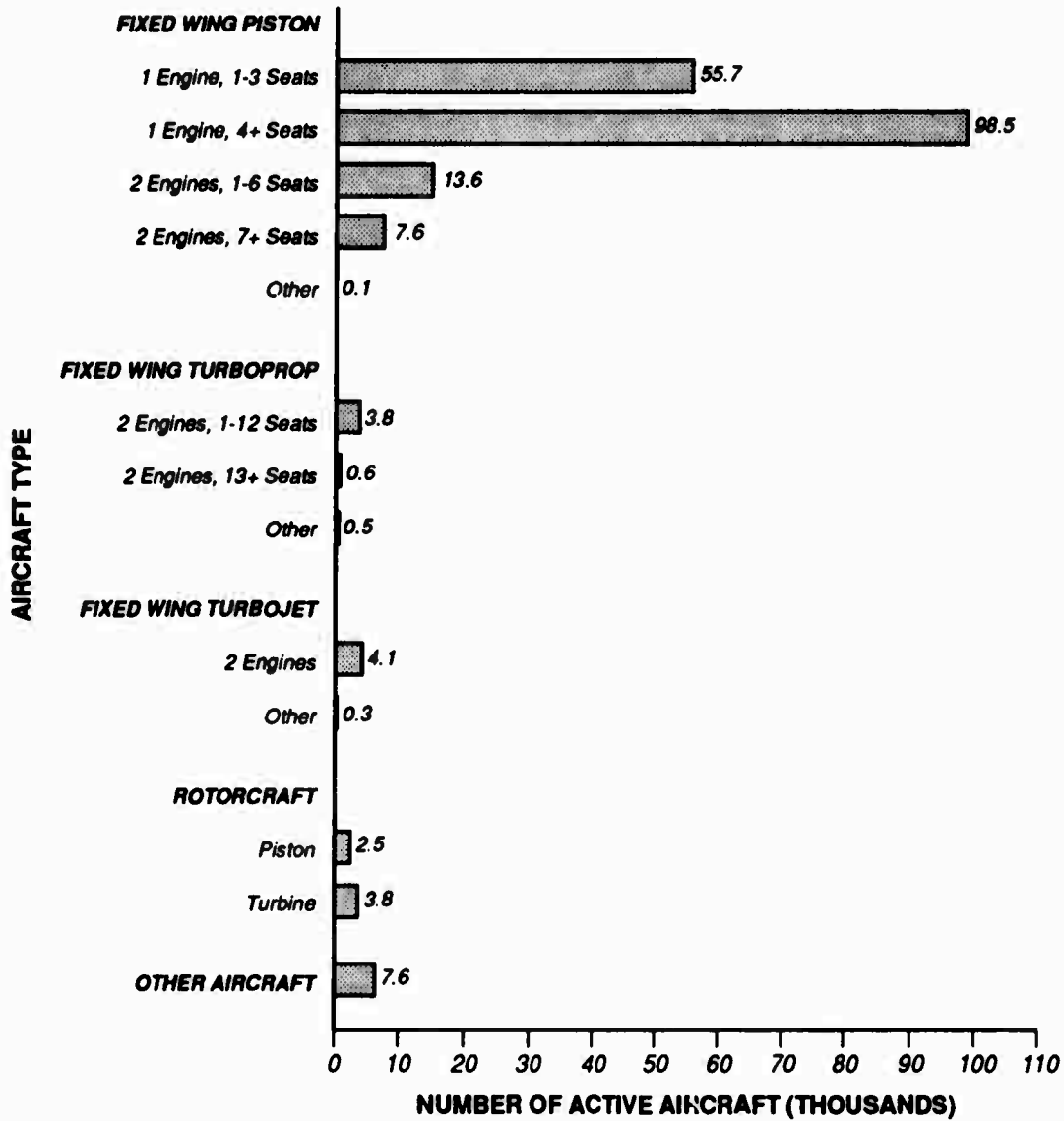
To visualize the data presented in Tables 2.1-2.7, three figures are included. Figures 2.1, 2.2 and 2.3 show, by aircraft type, the number of general aviation active aircraft, total flight hours, and number of landings, respectively.

Some observations derived from these tables are:

- o A great deal of variation in the number of active aircraft, total hours, and average hours exists among all types of general aviation aircraft.
- o On a national level, the results of the 1991 General Aviation Activity and Avionics survey reveal that more than 30 million hours were flown by the estimated 198,475 active general aviation aircraft in the 1991 general aviation fleet.
- o The average flight time per active aircraft in the 1991 general aviation fleet was 149 hours. Active aircraft constituted about 75 percent of the registered general aviation fleet, which is 5 percent lower than was estimated in 1990.
- o Single engine piston aircraft, with a population of 206,371 or 78 percent of the registered general aviation fleet, dominated the general aviation fleet, although the average hours flown (134) were lower than most aircraft types. This aircraft type accounted for 78 percent of the active aircraft but only 68 percent of the total flight time.
- o Turbine rotorcraft averaged the most hours per aircraft of any aircraft type, 592 average hours. Fixed wing turboprops with 13 or more seats were a close second with 589 average hours. This aircraft type's high average hours are most likely attributable to its heavy commercial use as commuter air carriers.
- o The two SDR manufacturer/model groups with the largest representation in the 1991 general aviation fleet were the Cessna 172, with 23,918 registered aircraft (9 percent of the registered general aviation fleet), of which 88 percent were active, and the Piper PA28, with 21,423 registered aircraft (8 percent of the registered general aviation fleet), of which 86 percent were active. The Cessna 172 accounted for 13 percent of the total 1991 hours flown, and the Piper PA28 accounted for 8 percent of the total 1991 hours flown.
- o The percentages of registered aircraft that were active in each region are relatively close together, ranging from a low of 71 percent in the Alaskan Region to a high of 80 percent in the New England Region.
- o The three regions with the greatest number of active aircraft were: the Western-Pacific with 36,545 active aircraft; the Great Lakes with 34,792; and the Southern with 32,428.
- o The Western-Pacific region accounted for the most flight time of any region, 5.5 million hours, with the Southern, Southwestern, and Great Lakes regions close behind.

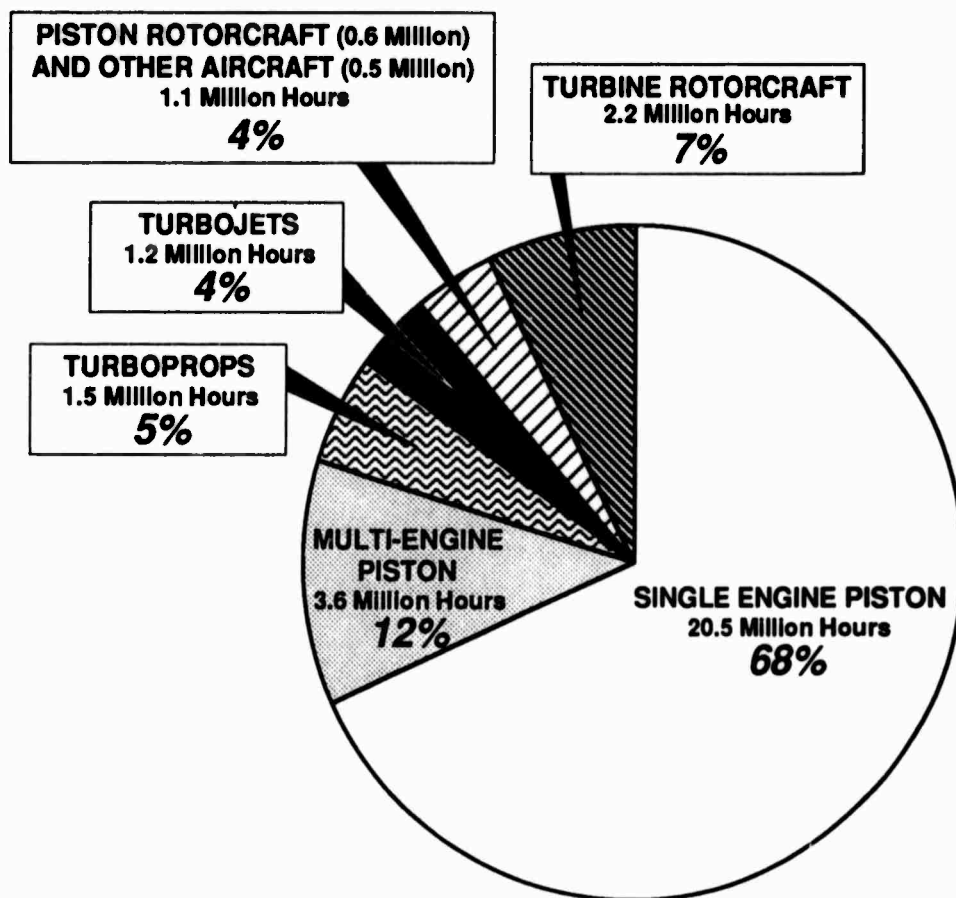
- o The state with the largest estimated number of active aircraft by far was California with 29,261 active aircraft. The next two states were Texas with 16,206 and Florida with 12,336 active aircraft.
- o The state with the highest estimated average flight hours was Hawaii with 534.3 hours. Montana averaged the lowest flight hours, 86.1.
- o During 1991, the general aviation fleet made almost 48 million landings. About 69 percent of the landings were in local flight versus 31 percent in cross country flight.
- o Single engine piston aircraft made the most landings, nearly 34 million, with 74 percent of the landings in local flight and 26 percent in cross country flight.
- o Turbojets and turboprops, which are used primarily for long, cross country flying, made 91 percent and 69 percent, respectively, of their landings in cross country versus local flight.
- o Rotorcraft had 6.7 million landings in 1991, with 81 percent in local flight.

**Figure 2.1**  
**1991 GENERAL AVIATION ACTIVE AIRCRAFT**  
**BY AIRCRAFT TYPE**



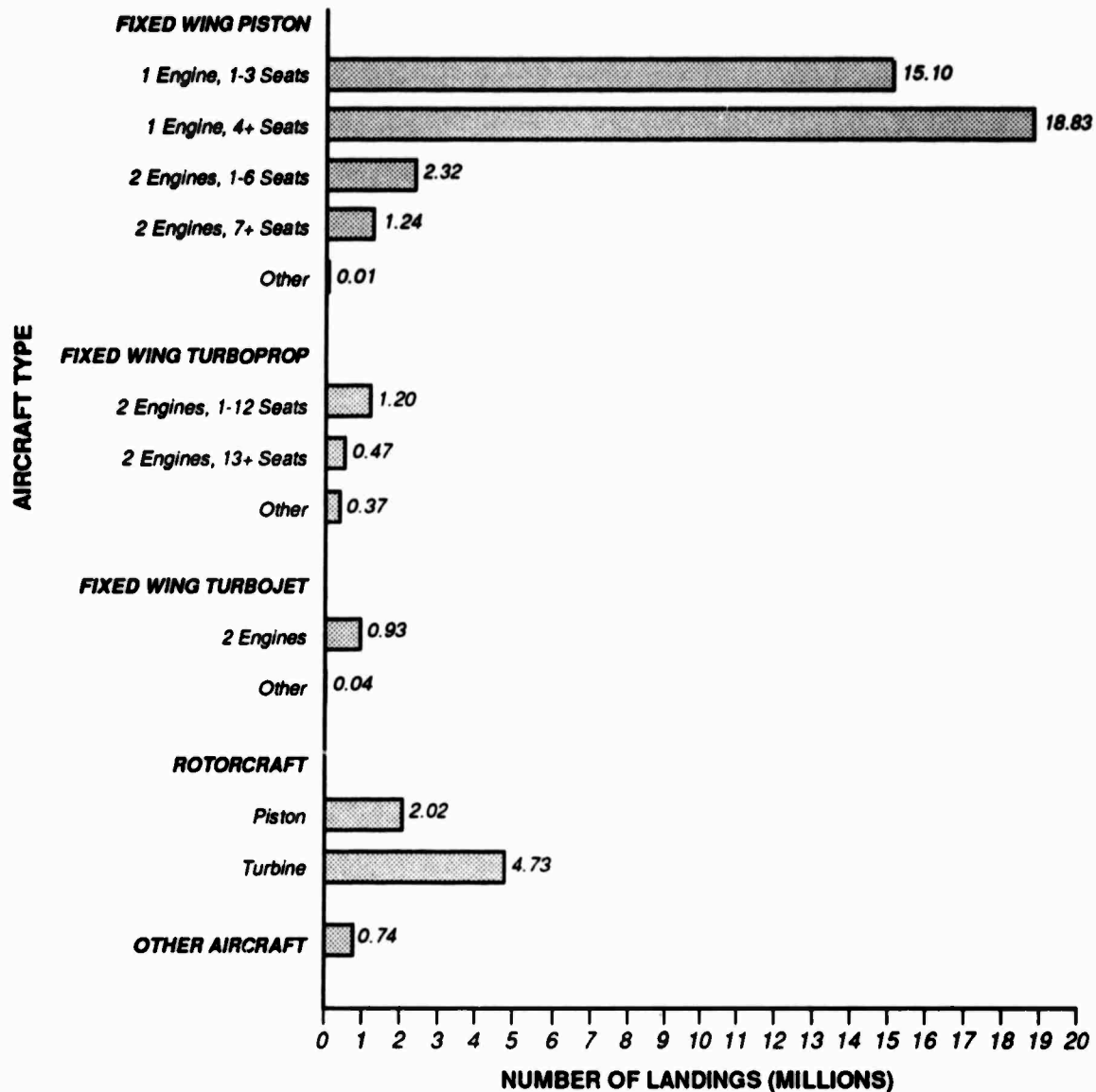
**SOURCE: Table 2.1**

**Figure 2.2**  
**1991 GENERAL AVIATION TOTAL FLIGHT HOURS**  
**BY AIRCRAFT TYPE**



**SOURCE: Table 2.1**

**Figure 2.3**  
**1991 GENERAL AVIATION LANDINGS**  
**BY AIRCRAFT TYPE**



**SOURCE: Table 2.5**

2.1 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
<b>FIXED WING</b>									
<b>FIXED WING - PISTON</b>									
1 ENG: 1-3 SEATS	88,322	55,652	1.6	63.0	1.0	6,757,304	4.2	122.5	4.1
1 ENG: 4+ SEATS	118,049	98,450	0.8	83.4	0.7	13,771,592	2.8	140.6	2.7
1 ENGINE: TOTAL	206,371	154,102	0.8	74.7	0.6	20,528,898	2.3	134.2	2.2
2 ENG: 1-6 SEATS	17,359	13,561	2.5	78.1	2.0	2,171,373	5.4	160.0	4.8
2 ENG: 7+ SEATS	8,464	7,557	1.7	89.3	1.5	1,383,684	6.3	181.8	6.1
2 ENGINE: TOTAL	25,823	21,119	1.7	81.8	1.4	3,555,057	4.1	167.0	3.8
PISTON: OTHER	272	127	22.0	46.7	10.3	6,673	33.5	41.3	26.1
PISTON: TOTAL	232,466	175,347	0.7	75.4	0.5	24,090,622	2.1	137.5	2.0
<b>FIXED WING - TURBOPROP</b>									
2 ENG: 1-12 SEATS	4,482	3,820	2.8	85.2	2.4	1,055,207	5.7	282.8	5.3
2 ENG: 13+ SEATS	1,253	577	13.0	46.0	6.0	303,517	16.4	589.2	7.5
2 ENGINE: TOTAL	5,735	4,398	3.0	76.7	2.3	1,358,723	5.8	311.9	4.5
TURBOPROP: OTHER	544	522	2.5	96.0	2.4	153,945	12.8	279.2	14.0
TURBOPROP: TOTAL	6,279	4,920	2.7	78.4	2.1	1,512,668	5.3	307.7	4.3



2.1 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	4,403	4,066	1.9	92.3	1.8	1,182,578	4.7	296.7	4.2
TURBOJET: OTHER	638	286	14.3	44.8	6.4	53,705	15.1	192.6	7.5
TURBOJET: TOTAL	5,041	4,353	2.0	86.4	1.7	1,236,283	4.5	289.7	4.0
FIXED WING: TOTAL	243,786	194,620	0.7	75.7	0.5	26,839,574	1.9	143.8	1.9
ROTORCRAFT									
PISTON	5,848	2,470	7.6	42.2	3.2	583,668	12.1	233.7	9.9
TURBINE	4,626	3,822	2.9	82.6	2.4	2,171,911	9.0	592.2	9.6
ROTORCRAFT: TOTAL	10,474	6,292	3.5	60.1	2.1	2,755,598	7.5	451.6	7.8
OTHER AIRCRAFT	10,781	7,563	2.9	70.2	2.1	459,360	8.9	61.4	9.7
TOTAL	265,041	198,475	0.6	74.9	0.5	30,054,530	1.8	149.1	1.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER 1	19,208	9,301	5.5	48.4	2.7	540,621	11.9	58.1	10.5
OTHER 2	1,970	1,271	8.4	64.5	5.4	173,341	16.6	136.4	14.3
OTHER 3	328	162	7.8	49.3	3.8	16,644	14.5	102.9	12.2
OTHER 4	256	124	17.7	48.6	8.6	19,303	31.3	155.2	25.8
OTHER 5	157	46	56.6	29.1	16.4	1,212	107.3	26.6	91.1
OTHER 6	469	373	8.4	79.4	6.7	158,200	22.7	424.6	21.0
OTHER 7	360	132	41.6	36.8	15.3	69,566	49.1	525.4	26.1
OTHER 8	197	197	0.0	100.0	0.0	23,159	59.3	113.8	59.8
OTHER 9	460	397	10.9	86.4	9.4	128,017	20.1	322.1	17.0
OTHER 10	328	124	28.4	37.9	10.8	18,279	33.1	146.9	17.1
OTHER 11	1,991	459	17.2	23.0	4.0	55,139	33.1	120.2	28.3
OTHER 12	217	102	22.7	46.9	10.6	48,541	37.5	476.8	29.9
OTHER 13	3,847	2,914	4.9	75.8	3.7	186,211	20.4	63.9	19.8
ADAMS A50S	135	91	21.3	67.1	14.3	1,816	32.6	20.0	24.7
AERORSJ2	33	6	48.8	19.3	9.4	152	51.9	23.9	17.6
AEROSPAS355	116	107	6.1	92.4	5.7	55,659	13.1	519.4	11.5
AEROSPAS316	90	50	44.9	55.7	25.0	34,744	73.8	693.1	58.6
AEROSPAS365	28	27	6.0	96.2	5.7	13,201	11.4	490.1	9.7
AGUSTA109	65	53	13.3	81.0	10.8	13,126	27.5	249.3	24.0
AIRPTSA	209	92	15.5	43.9	6.8	9,812	25.9	106.9	20.7
AIRSPC18	27	9	35.3	34.0	12.0	644	43.9	70.1	26.1

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
AIRTRCAT300	425	326	11.9	76.7	9.1	109,080	16.3	334.8	11.2
AIRTRCAT400	134	123	11.1	91.9	10.2	58,234	14.6	472.8	9.5
AIRTRCAT500	99	95	8.3	96.5	8.0	33,390	18.0	349.7	16.0
AMD FALC10	107	102	5.3	95.0	5.0	32,012	12.3	315.0	11.1
AMD FALC20	174	164	6.6	94.1	6.2	36,043	23.7	220.1	22.8
AMD FALC50	122	80	18.3	65.2	11.9	23,155	19.8	290.9	7.6
AMRGENAG5B	67	61	4.8	91.7	4.4	18,719	13.6	304.7	12.7
AMTR TMK	20	18	16.7	91.9	15.4	418	37.4	22.8	33.5
ARCRNEH37	44	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ARCTICS1A	89	23	23.6	25.6	6.0	1,266	30.3	55.6	19.0
ARCTICS1B1	26	12	26.5	45.8	12.1	384	63.3	32.2	57.4
ARONCA15	203	97	14.8	47.8	7.1	8,097	23.3	83.4	18.0
ARONCA58	144	64	24.3	44.2	10.8	1,893	33.7	29.7	23.2
ARONCA65	151	68	16.9	45.2	7.6	2,293	29.7	33.6	24.4
ARONCAC3	53	8	36.1	16.0	5.8	77	40.5	9.1	18.3
AROSTRDX8	102	102	0.0	100.0	0.0	5,409	9.0	49.6	10.2
AVIANWFALCON	25	24	15.3	94.9	14.5	335	33.1	14.1	29.4
AVIANWSKYHWK	48	47	4.9	98.5	4.8	974	27.7	20.6	27.2
AYRES S2	814	727	7.3	89.3	6.5	269,668	10.8	369.4	8.3
BAG	37	20	18.2	54.6	9.9	23,510	18.7	1,164.3	4.4
BAG B206	26	3	188.1	12.6	23.8	452	195.1	137.5	51.8

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BALWKSFIREFY	1,750	1,100	12.4	62.8	7.8	35,638	21.3	32.4	17.4
BBAVIA11	824	384	18.7	46.6	8.7	14,567	29.1	37.9	22.3
BBAVIA7	3,537	1,989	9.2	56.2	5.2	143,112	19.1	71.9	16.7
BBAVIA8	224	155	9.8	69.2	6.8	11,550	18.5	74.5	15.7
BEECH 100	224	198	8.3	88.4	7.4	56,585	10.1	285.8	5.6
BEECH 17	199	119	22.0	59.7	13.1	4,097	33.5	34.5	25.3
BEECH 18	781	471	17.1	60.4	10.3	73,518	31.0	160.8	25.5
BEECH 1900	122	67	34.2	54.6	18.6	63,976	37.2	960.9	14.7
BEECH 200	781	717	5.1	91.8	4.7	231,545	9.9	322.9	8.5
BEECH 23	2,613	2,421	3.8	92.7	3.6	263,788	16.4	109.0	16.0
BEECH 300	161	88	22.0	54.6	12.0	23,617	24.2	268.8	10.1
BEECH 33	2,058	1,918	3.6	93.2	3.3	321,756	18.8	167.8	18.4
BEECH 35	6,673	5,727	3.5	85.8	3.0	602,787	8.0	105.2	7.2
BEECH 36	2,439	2,213	3.7	90.7	3.4	356,450	9.4	161.1	8.7
BEECH 45	321	200	15.2	62.3	9.4	15,480	22.8	77.4	17.1
BEECH 50	325	161	15.1	49.6	7.5	16,135	22.9	100.1	17.3
BEECH 55	2,113	1,695	6.7	80.2	5.3	240,743	12.4	142.0	10.5
BEECH 56	60	46	14.6	76.9	11.2	2,584	20.3	56.0	14.2
BEECH 58	1,502	1,277	5.8	85.0	4.9	274,094	15.3	214.7	14.1
BEECH 60	393	328	13.2	83.4	11.0	46,178	23.5	140.9	19.4
BEECH 65	117	63	30.4	53.5	16.3	6,749	39.1	107.7	24.6

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 4 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BEECH 76	258	224	11.9	86.7	10.3	103,958	24.1	464.6	20.9
BEECH 77	225	197	6.5	87.4	5.7	52,737	15.8	268.3	14.4
BEECH 80	153	123	14.2	80.6	11.5	13,701	34.6	111.1	31.5
BEECH 90	1,019	871	7.7	85.5	6.6	205,833	11.9	236.3	9.0
BEECH 95	441	374	10.3	84.8	8.7	36,344	29.0	97.1	27.1
BEECH 99	115	63	35.6	54.6	19.4	31,352	48.0	499.6	32.3
BELL 204	25	19	26.5	77.0	20.4	1,284	39.6	66.8	29.4
BELL 205	32	31	8.8	96.2	8.5	9,396	16.5	305.2	14.0
BELL 206	1,850	1,760	3.7	95.1	3.5	1,205,963	14.4	685.2	14.0
BELL 212	98	94	5.0	96.2	4.8	43,168	12.1	457.9	11.0
BELL 214	14	8	41.6	55.0	22.9	10,769	53.7	1,399.2	33.9
BELL 222	69	53	18.1	76.5	13.9	13,836	44.2	262.2	40.3
BELL 412	92	86	10.3	93.3	9.6	29,753	30.9	346.7	29.2
BELL 47	814	437	18.4	53.7	9.9	83,077	25.1	189.9	17.1
BLANCA11	82	48	16.4	59.1	9.7	2,341	27.5	48.3	22.0
BLANCA1413	248	83	24.2	33.6	8.1	5,258	28.6	63.1	15.2
BLANCA1419	268	181	11.7	67.5	7.9	8,915	18.4	49.3	14.2
BLANCA17	1,007	890	6.8	88.4	6.0	92,442	14.5	103.9	12.8
BLANCA7	2,304	1,656	8.5	71.9	6.1	96,807	16.6	58.4	14.3
BLANCA8	452	385	9.3	85.3	7.9	23,042	18.3	59.8	15.8
BNORM BN2	89	89	0.0	100.0	0.0	44,677	31.4	467.0	35.5

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 5 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
BOEING727	43	17	51.3	38.9	19.9	2,554	52.9	152.9	13.0
BOEING737	20	0	0.0	0.0	0.0	0	0.0	0.0	0.0
BOEING75	1,944	789	14.2	40.6	5.8	82,121	40.2	104.1	37.6
BOLKMS105	184	110	40.3	59.6	24.0	67,777	43.8	617.6	17.2
BOLKMS117	121	108	9.9	89.1	8.9	59,845	18.5	555.2	15.5
BRAERODH125	205	192	6.2	93.5	5.8	69,591	13.4	363.2	11.9
BRASOVIS28	47	37	17.3	78.5	13.6	2,760	29.6	74.8	24.1
BRWSTFLEET2	29	8	22.7	27.3	6.2	199	25.8	25.1	12.3
BRWSTFLEET7	21	12	20.2	56.8	11.5	954	27.6	80.0	18.8
BUKER 131	28	9	59.9	30.6	18.4	652	70.8	76.0	37.6
CAMRONMODELO	56	56	0.0	100.0	0.0	1,873	22.0	31.3	23.6
CAMRONMODELO	237	166	13.9	70.0	9.7	3,341	40.8	20.1	38.3
CASA C212	39	17	51.4	42.9	22.1	6,946	57.2	415.4	25.0
CESSNA120	847	638	10.8	75.3	8.1	31,192	14.2	48.9	9.2
CESSNA140	2,340	1,402	10.2	59.9	6.1	59,301	15.5	42.3	11.7
CESSNA150	18,048	14,267	3.0	79.0	2.4	2,970,302	8.5	208.2	7.9
CESSNA170	2,477	1,991	4.9	80.4	3.9	131,717	10.3	66.1	9.1
CESSNA172	23,918	21,087	1.8	88.2	1.6	3,818,788	7.1	181.1	6.9
CESSNA175	1,306	910	10.2	69.7	7.1	127,568	39.0	140.1	37.6
CESSNA177	2,717	2,418	4.6	89.0	4.1	225,521	13.2	93.2	12.4
CESSNA180	2,736	2,040	6.7	74.6	5.0	165,748	12.2	81.2	10.2

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 6 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CESSNA182	13,480	11,489	2.4	85.2	2.1	1,457,136	6.6	126.8	6.2
CESSNA185	1,583	1,286	7.9	81.2	6.4	173,537	19.8	134.9	18.1
CESSNA188	1,519	1,121	10.6	73.8	7.8	291,930	16.7	260.5	12.9
CESSNA190	84	59	13.2	70.0	9.2	2,758	18.9	46.9	13.5
CESSNA195	498	147	31.4	29.5	9.3	9,316	37.5	63.4	20.6
CESSNA205	234	206	7.8	88.1	6.9	20,204	19.3	98.0	17.6
CESSNA206	2,532	2,229	4.5	88.0	4.0	479,603	15.1	215.2	14.4
CESSNA207	308	284	9.8	92.3	9.1	185,330	20.6	652.2	18.1
CESSNA208	113	113	0.0	100.0	0.0	49,196	17.6	404.2	22.0
CESSNA210	5,709	5,178	3.1	90.7	2.8	662,682	8.6	128.0	8.0
CESSNA303	134	110	12.3	82.0	10.1	20,728	23.1	188.6	19.6
CESSNA305	279	165	12.0	59.2	7.1	16,276	20.7	98.5	16.9
CESSNA310	2,999	2,286	7.9	76.2	6.0	383,147	14.4	167.6	12.0
CESSNA320	301	238	7.8	79.1	6.2	24,711	19.1	103.7	17.5
CESSNA335	40	31	11.2	76.9	8.6	6,984	20.4	227.1	17.0
CESSNA336	69	37	15.4	53.0	8.1	2,731	20.8	74.7	14.0
CESSNA337	1,105	809	12.3	73.2	9.0	118,131	41.9	146.0	40.1
CESSNA340	857	715	9.5	83.5	7.9	108,762	17.3	152.1	14.5
CESSNA401	192	192	0.0	100.0	0.0	27,422	28.8	132.9	30.4
CESSNA402	564	466	12.1	82.7	10.0	185,352	22.0	397.6	18.3
CESSNA404	121	121	0.0	100.0	0.0	48,959	28.2	392.1	29.6

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 7 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CESSNA411	118	84	13.3	70.9	9.4	5,715	26.3	68.3	22.7
CESSNA414	743	743	0.0	100.0	0.0	131,194	8.4	164.3	9.8
CESSNA421	1,140	1,106	3.5	97.0	3.4	162,253	12.4	146.7	11.9
CESSNA425	168	154	9.1	91.8	8.4	33,637	19.9	218.1	17.7
CESSNA441	208	168	11.3	80.8	9.1	42,783	22.0	254.4	18.9
CESSNA500	727	690	4.5	95.0	4.3	220,603	14.0	319.5	13.3
CESSNA501	261	245	5.5	94.0	5.2	40,327	14.1	164.4	13.0
CESSNA650	161	153	5.5	95.0	5.3	57,130	12.9	373.7	11.6
CESSNA750	66	23	21.3	35.2	7.5	723	32.2	31.1	24.0
CESSNAUC94	30	1	185.5	4.3	7.9	69	185.5	54.0	0.0
CHILD S1	58	48	18.4	83.0	15.3	3,921	24.3	81.4	15.9
CHILD S2	148	131	11.1	88.4	9.8	3,544	24.5	27.1	21.9
CHRIS HUSKY	95	75	12.1	78.6	9.5	6,233	24.8	83.5	21.6
CNDAIRCL600	156	148	6.4	95.0	6.1	46,337	11.1	312.8	9.1
CNTRAR101	35	26	14.4	73.2	10.6	2,127	23.0	83.0	17.9
COMETH185	103	28	29.9	27.2	8.1	952	38.5	34.0	24.2
CONAERLA4	442	352	8.6	79.7	6.8	25,090	19.5	71.2	17.5
CURTISJR	23	4	49.8	16.2	8.1	15	55.5	4.0	24.5
CURTISROBIN	31	3	105.8	9.7	10.2	39	113.6	13.0	41.2
CURTISTEVAIR	184	34	26.8	18.6	5.0	5,236	38.6	153.3	27.8
CVAC 240	28	0	0.0	0.0	0.0	0	0.0	0.0	0.0



2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 8 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CVAC 440	16	16	0.0	100.0	0.0	484	16.2	28.1	25.7
CVAC BT13	122	52	30.4	42.2	12.8	1,895	47.1	36.8	36.0
CVAC STC580	46	23	60.3	49.1	29.6	6,305	66.2	279.1	27.2
DART G	23	6	67.1	25.5	17.1	53	67.1	9.0	0.0
DEAV DHC1	103	76	12.4	74.3	9.2	3,863	28.5	50.5	25.7
DEAV DHC2	219	94	39.7	42.9	17.0	22,818	44.2	242.9	19.5
DEAV DHC3	34	30	19.8	87.6	17.3	10,157	22.1	341.1	9.9
DEAV DHC4	30	30	0.0	100.0	0.0	3,967	0.0	123.0	0.0
DEAV DHC6	66	32	31.7	47.8	15.2	22,288	34.9	706.4	14.4
DEAV DHC82	76	55	11.1	72.9	8.1	2,507	19.1	45.3	15.5
DORNERDO228	39	21	28.8	54.6	15.7	11,645	40.1	547.1	27.9
DOUG A26	27	10	43.4	38.7	16.8	97	51.6	9.3	28.0
DOUG DC3	367	140	42.7	38.0	16.2	21,429	64.0	153.5	47.7
DOUG DC4	77	50	17.2	64.5	11.1	1,360	35.8	27.4	31.3
DOUG DC6	38	32	23.0	83.0	19.1	4,100	42.8	130.0	36.1
DOUG DC8	18	12	44.1	66.6	29.4	3,970	45.4	331.1	11.1
DOUG DC9	31	29	17.2	95.0	16.3	3,737	102.4	127.0	100.9
EAGLE DW	66	58	11.3	87.8	9.9	12,834	16.0	221.4	11.4
EAGLEBC7	77	59	12.9	76.7	9.9	2,501	20.8	42.3	16.3
EIRVON20	109	106	3.7	97.0	3.6	5,031	17.4	47.6	17.0
EMB 110	55	30	54.6	54.6	29.8	16,308	88.6	543.3	69.8

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 9 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
EMB 120	27	15	89.5	54.6	48.9	11,640	89.5	790.0	0.0
ENSTRMF28	397	266	10.5	67.1	7.1	59,926	23.4	226.2	20.8
FLEET 16B	24	4	75.0	15.3	11.5	164	80.1	44.5	27.9
FRCHLD22	21	5	35.1	25.5	9.0	86	39.8	16.0	18.7
FRCHLD24	283	93	15.2	32.7	5.0	3,618	21.6	39.1	15.4
FRCHLDC119	23	0	0.0	0.0	0.0	0	0.0	0.0	0.0
FRCHLDM62	237	104	14.4	43.8	6.3	4,135	20.0	39.8	13.8
GALAXYGX7	49	49	0.0	100.0	0.0	1,282	22.8	24.5	24.0
GENBALAX6	54	17	54.8	31.2	17.1	413	56.6	24.6	14.1
GLASER300	21	21	0.0	100.0	0.0	1,165	23.9	51.9	25.3
GLASER400	34	24	19.0	69.8	13.3	1,824	23.2	76.8	13.4
GLASFLLH301	112	99	6.0	88.1	5.3	5,028	16.2	50.9	15.0
GLASFLLIBELL	39	37	4.7	95.4	4.5	1,528	14.7	41.1	13.9
GROB 103CAT	58	58	0.0	100.0	0.0	15,364	13.7	248.0	16.1
GROB 103TWN	26	26	0.0	100.0	0.0	8,308	23.2	299.1	24.4
GROB 109	63	58	4.9	92.4	4.5	4,739	17.8	81.4	17.1
GROB ASTIR	51	51	0.0	100.0	0.0	2,368	31.2	45.6	31.5
GRTLKST1	189	129	12.3	68.4	8.4	7,088	25.4	54.8	22.3
GRUMANSAL16	56	26	26.5	46.3	12.2	2,308	24.9	135.0	3.5
GRUMAVAA1	547	482	5.1	88.0	4.5	44,291	17.6	92.0	16.8
GRUMAVAA5	1,027	924	5.4	90.0	4.9	108,226	12.8	117.1	11.6

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 10 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
GRUMAVG1159	34	32	7.3	95.0	6.9	8,498	12.5	263.2	10.1
GRUMAVG164	1,097	923	7.6	84.2	6.4	332,454	10.7	360.0	7.5
GRUMAVG21	49	30	14.3	61.2	8.7	2,051	22.4	68.4	17.2
GRUMAVTEM	33	25	12.8	75.4	9.7	845	31.6	34.0	28.9
GULSTM112	650	602	5.9	92.7	5.4	60,653	16.4	100.7	15.3
GULSTM500	291	291	0.0	100.0	0.0	32,818	21.4	109.8	21.9
GULSTM520	47	22	33.4	46.7	15.6	1,308	40.1	59.5	22.1
GULSTM560	106	81	20.1	76.4	15.4	4,708	29.8	58.2	22.0
GULSTM680	284	235	9.5	82.8	7.9	12,473	20.6	53.0	18.2
GULSTM680TP	72	31	38.5	43.7	16.8	2,911	57.8	92.5	43.1
GULSTM690TC	26	24	8.7	91.8	8.0	4,282	13.0	179.4	9.7
GULSTM690TP	353	318	8.5	90.2	7.7	63,689	15.4	200.0	12.9
GULSTMMA1	577	503	8.1	87.1	7.1	40,432	17.7	80.4	15.7
GULSTMMA5	614	548	6.6	89.2	5.9	43,996	15.1	80.3	13.6
GULSTMG1159	292	257	10.1	88.2	8.9	80,340	17.5	312.0	14.2
GULSTMG159	68	37	26.5	54.6	14.5	9,712	31.1	261.7	16.4
GULSTMGA4	90	56	15.6	62.4	9.7	5,375	28.6	95.7	24.0
GULSTMG73	29	12	31.1	41.5	12.9	1,561	47.7	129.7	36.2
GULSTMGA7	51	44	11.6	87.1	10.1	4,548	22.0	102.3	18.7
H23/HTE	33	14	50.3	42.3	21.3	993	60.7	71.1	34.0
H34/55	29	2	326.1	5.3	17.2	178	326.1	116.0	0.0

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 11 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
HELIO H391	24	10	36.0	43.6	15.7	616	43.5	58.9	24.4
HILLERFH1100	59	35	31.0	60.0	18.6	2,392	33.9	67.6	13.6
HILLERUH12	548	308	28.3	56.3	15.9	85,641	37.7	277.2	25.6
HSPAVNHA200	40	34	31.1	85.5	26.6	1,671	33.3	48.9	12.0
HUGHES269	618	332	23.0	53.7	12.4	95,820	36.7	288.5	28.6
HUGHES369	571	462	8.6	80.9	7.0	277,049	21.7	599.5	19.9
HWKSLYDH104	29	29	0.0	100.0	0.0	249	134.7	8.0	136.4
HWKSLYDH125	166	156	6.3	94.2	5.9	34,459	16.7	220.4	15.5
HYNES B2	123	50	39.1	40.8	15.6	4,268	57.1	85.0	42.5
INTRCP200	33	26	8.9	78.3	7.0	3,076	17.6	119.1	15.2
ISRAEL1121	86	73	14.1	85.2	12.0	7,034	32.5	96.0	29.3
ISRAEL1123	21	20	9.5	95.0	9.0	2,440	21.0	122.3	18.8
ISRAEL1124	202	176	8.0	86.9	7.0	47,783	14.0	272.1	11.5
JBMSTRDGA15	84	34	22.6	40.1	9.1	2,723	48.9	80.9	43.4
LAIRFN10	34	3	106.4	8.5	9.1	17	106.4	6.0	0.0
LEAR 23	44	42	11.4	95.0	10.8	3,402	55.6	81.4	54.4
LEAR 24	156	148	7.9	95.0	7.5	19,451	32.8	131.3	31.8
LEAR 25	235	223	7.7	95.0	7.3	66,627	13.9	298.6	11.6
LEAR 35	407	387	7.2	95.0	6.8	178,582	14.4	462.0	12.5
LEAR 55	97	92	5.9	95.0	5.6	29,880	13.7	324.4	12.3

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 12 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
LET L13	158	158	0.0	100.0	0.0	16,897	17.2	105.3	17.6
LKHEED1329	76	47	23.7	61.4	14.5	5,688	31.3	122.0	20.4
LKHEED18	62	28	56.1	44.8	25.1	950	58.6	34.2	16.8
LKHEED282	30	6	94.0	21.5	20.3	1,383	94.0	214.0	0.0
LKHEEDP2V	36	2	226.9	5.8	13.2	195	226.9	93.0	0.0
LKHEEDPV1	35	4	147.9	1.9	17.7	111	157.7	26.5	54.6
LKHEEDT33	51	7	59.3	13.3	7.9	59	67.4	8.6	32.2
LUSCOM8	2,111	1,034	12.7	49.0	6.2	51,624	19.5	49.9	14.8
MACDOUG369	80	77	6.6	96.2	6.4	83,907	23.2	1,090.3	22.2
MARTIN404	25	2	124.9	8.3	10.3	25	124.9	12.0	0.0
MAULE M4	270	157	19.1	58.1	11.1	7,880	32.3	50.3	26.1
MAULE M5	436	342	11.5	78.5	9.0	29,051	16.8	84.9	12.3
MAULE M6	66	61	11.1	91.9	10.2	6,780	28.2	111.8	25.9
MAULE MX7	22	21	4.8	93.8	4.5	1,636	10.4	79.3	9.2
MCLISHFUNKB	147	61	16.9	41.6	7.0	1,582	21.3	25.8	12.9
MEYERSOTW	47	20	18.3	42.8	7.8	315	27.3	15.7	20.3
MILITARY204	210	161	20.5	76.5	15.7	22,231	32.6	138.4	25.3
MILITARY47	358	127	33.5	35.4	11.9	16,765	56.9	132.3	46.0
MNCOUP90	61	40	23.6	33.5	7.9	365	30.9	17.8	20.0
MNMITEM18	135	62	13.6	46.1	6.5	2,683	21.4	43.1	16.5
MODFD47	50	37	22.0	74.9	16.5	13,910	32.2	371.4	23.4

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 13 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MOONEYM20	6,493	5,755	3.1	88.6	2.8	760,042	11.0	132.1	10.6
MOONEYM22	19	16	14.6	86.0	12.6	1,395	22.7	85.4	17.4
MRCHTIS205	44	25	27.1	57.8	15.7	1,344	35.7	52.9	23.2
MTSBSIMU2	299	244	16.5	81.7	13.5	77,191	23.8	315.9	17.1
MTSBSIMU300	71	67	5.0	95.0	4.8	15,263	13.3	226.4	12.3
MULTECD16	38	24	19.9	62.9	12.6	1,216	43.1	50.8	38.2
NAMER B25	53	19	32.9	35.6	11.7	1,021	34.1	54.2	9.1
NAMER F51	144	89	10.8	61.6	6.7	4,191	19.7	47.3	16.4
NAMER NA260	201	95	18.0	47.2	8.5	3,289	21.4	34.6	11.6
NAMER T6	607	378	18.7	62.2	11.6	18,644	22.9	49.3	13.3
NATBAL752	35	35	0.0	100.0	0.0	762	27.6	20.4	30.3
NAVAL N3N	126	42	27.2	33.5	9.1	1,754	30.0	41.5	12.8
NAVIONNAVION	581	330	15.5	56.9	8.8	26,911	25.7	81.4	20.5
NORD 3202	24	13	30.2	52.5	15.9	312	36.2	24.8	19.9
NORD SV4	41	17	21.0	40.4	8.5	426	27.1	25.7	17.1
NORWST65	55	30	20.1	55.0	11.1	1,775	31.4	58.6	24.1
ORLHELH19	69	10	96.3	14.0	13.5	528	109.2	54.7	51.5
ORLHEL558	31	0	0.0	0.0	0.0	0	0.0	0.0	0.0
OTHEXMILTURB	29	21	9.4	73.6	6.9	11,158	21.1	523.0	18.9
PARTENP68	34	34	0.0	100.0	0.0	8,365	19.6	228.9	21.0
PICARDAX6	135	45	31.5	33.1	10.4	939	44.2	21.0	30.9

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 14 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
PIATSB4	28	24	10.0	86.8	8.6	1,463	29.9	60.2	28.1
PIPER 600	355	309	10.2	87.1	8.9	50,858	15.4	164.4	11.6
PIPER J2	53	12	26.5	22.6	6.0	154	34.1	12.9	21.4
PIPER J3	4,309	2,285	7.6	53.0	4.0	120,293	16.5	52.6	14.7
PIPER J4	234	95	12.0	40.6	4.9	3,298	24.9	34.7	21.8
PIPER J5	319	164	9.0	51.4	4.6	12,924	31.5	78.8	30.2
PIPER PA12	1,349	782	9.7	58.0	5.6	52,009	16.6	66.5	13.4
PIPER PA14	104	60	10.5	58.1	6.1	5,797	17.4	95.9	13.9
PIPER PA15	177	65	27.8	36.7	10.2	2,279	34.3	35.1	20.2
PIPER PA16	363	159	18.7	43.7	8.2	8,305	25.9	52.4	17.9
PIPER PA17	102	41	26.4	40.0	10.5	1,698	51.1	41.7	43.8
PIPER PA18	3,610	2,170	9.9	60.1	6.0	199,801	17.5	92.1	14.4
PIPER PA20	441	292	12.2	66.2	8.1	15,728	21.8	53.9	18.1
PIPER PA22	4,681	2,862	7.2	61.2	4.4	143,567	11.5	50.6	9.3
PIPER PA23	3,216	2,572	7.1	80.0	5.6	382,208	14.3	148.6	12.5
PIPER PA24	3,074	2,601	4.9	84.6	4.2	230,118	10.4	88.5	9.1
PIPER PA25	1,052	903	9.9	85.8	8.5	118,456	23.1	131.2	20.9
PIPER PA28	21,423	18,500	1.9	86.4	1.6	2,700,069	6.3	146.8	6.0
PIPER PA30	1,229	995	7.4	81.0	6.0	122,489	13.9	123.1	11.8
PIPER PA31	1,602	1,556	2.6	97.1	2.5	294,683	12.3	190.2	12.2
PIPER PA31T	486	422	7.9	86.7	6.8	101,385	23.3	240.5	21.9

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 15 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
PIPER PA32	4,142	3,650	3.6	88.1	3.2	536,759	9.3	147.1	8.5
PIPER PA34	1,698	1,698	0.0	100.0	0.0	346,239	15.8	191.5	16.4
PIPER PA36	288	255	9.4	88.6	8.3	54,868	16.4	215.1	13.5
PIPER PA38	1,111	784	11.0	70.5	7.7	199,700	19.9	254.8	16.6
PIPER PA42	88	81	7.8	91.8	7.1	20,118	13.6	249.0	11.1
PIPER PA44	290	250	9.6	86.3	8.3	91,603	25.8	365.9	24.0
PIPER PA46	280	263	5.8	93.8	5.4	52,800	9.9	200.9	8.1
PROPTJ200	68	39	18.8	57.4	10.8	2,048	24.5	52.5	15.8
RAVEN RX6	179	44	28.0	24.3	6.8	566	35.3	13.0	21.4
RAVEN S50	82	35	25.9	43.1	11.2	2,131	56.8	60.3	50.5
RAVEN S55	714	187	35.9	26.1	9.4	4,407	47.0	23.6	30.3
RAVEN S57	102	102	0.0	100.0	0.0	4,751	14.5	46.0	14.8
RAVEN S60	225	182	17.7	80.9	14.3	3,528	27.9	19.4	21.6
RAVEN S66	49	32	15.1	66.2	10.0	1,835	25.4	56.6	20.4
RKWE1500	27	27	0.0	100.0	0.0	3,480	16.3	119.9	17.4
RKWE1700	23	23	0.0	100.0	0.0	3,608	14.7	145.9	16.1
RKWE1A265	250	237	5.2	95.0	5.0	53,351	13.2	224.7	12.1
ROBSINR22	633	462	16.1	72.9	11.7	182,181	22.1	394.7	15.1
ROLSCHLS	120	106	10.3	88.2	9.1	6,545	34.3	61.8	32.7
RYAN ST3	168	72	16.6	42.8	7.1	2,151	24.0	29.9	17.3
RYAN STA	32	2	176.0	7.1	12.4	20	176.0	9.0	0.0



2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 16 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SAAB SF340	27	15	52.7	54.6	28.7	5,813	62.8	394.5	34.3
SCHEMPPDISCUS	45	45	0.0	100.0	0.0	3,363	20.9	72.3	21.4
SCHLERASK21	31	31	0.0	100.0	0.0	6,533	21.9	197.3	23.5
SCHLERASW15	32	27	10.5	83.6	8.8	1,216	16.7	45.4	13.0
SCHLERASW19	56	50	8.3	89.8	7.5	2,644	24.0	52.6	22.5
SCHLERASW20	80	80	0.0	100.0	0.0	7,794	10.7	91.2	12.0
SCHLERK8	24	10	37.8	40.1	15.2	298	56.1	31.0	41.5
SCHLERKA6	66	41	17.3	61.5	10.7	1,848	24.0	45.5	16.6
SCWZERG164	199	141	16.8	70.7	11.9	45,792	21.1	325.6	12.8
SCWZERSG1	734	413	12.4	56.3	7.0	22,237	20.0	53.8	15.7
SCWZERSG2	559	411	7.7	73.5	5.6	65,730	15.0	159.9	12.9
SEMCO T	28	9	54.1	33.4	18.0	9	54.1	1.0	0.0
SKRSKYS55	33	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SKRSKYS58	69	24	55.2	35.0	19.3	2,289	69.4	94.8	42.1
SKRSKYS58T	39	21	54.3	52.9	28.7	6,159	56.1	298.5	14.1
SKRSKYS61	20	10	52.5	48.1	25.3	17,143	52.7	1,782.0	3.9
SKRSKYS76	163	74	44.8	45.7	20.4	35,738	52.0	480.1	26.4
SLINDS100	293	274	5.8	93.4	5.4	14,027	17.1	51.3	16.1
SMITH 600	338	270	11.7	80.0	9.4	34,863	18.8	129.0	14.8
SNALS350	99	95	7.9	96.2	7.6	34,700	28.4	364.3	27.3
SNIAS 350	162	129	18.4	79.3	14.6	48,718	52.5	379.1	49.2

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 17 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
SNIAS SA318	21	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SNIAS SA341	29	15	22.9	52.6	12.1	1,694	36.3	111.1	28.1
SOCATMS894	37	30	14.1	80.4	11.4	1,947	26.6	65.4	22.6
SOCATARALLYE	20	17	13.3	85.3	11.3	1,612	23.8	94.5	19.8
SOCATATE10	69	38	32.2	54.7	17.6	8,390	37.0	222.4	18.4
SOCATATE20	145	110	11.8	75.9	8.9	19,701	17.0	179.1	12.2
SPHRTHCIRRUS	94	89	4.2	94.9	4.0	5,139	17.0	57.6	16.5
SPHRTHINIBUS	47	41	9.5	88.1	8.4	1,963	16.2	47.4	13.1
SPHRTHVENTUS	42	42	0.0	100.0	0.0	3,849	27.9	85.8	28.9
STBROSD3	31	13	91.9	40.9	37.6	330	91.9	26.0	0.0
STNSON10	148	18	35.4	11.8	4.2	508	43.4	29.0	25.0
STNSONJR	20	4	42.8	21.7	9.3	62	47.7	14.3	21.2
STNSONL5	127	55	12.3	43.3	5.3	1,872	24.0	34.0	20.6
STNSONSR9	23	3	58.4	14.8	8.6	44	58.4	13.0	0.0
STNSONV77	95	25	20.2	26.5	5.4	535	25.2	21.2	15.0
STOLAMRC3	227	59	37.3	26.2	9.8	3,020	43.0	50.8	21.3
SUPAC LA	91	4	151.1	4.1	6.1	242	151.1	65.7	4.8
SUPAC V	27	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SWRNGNSA226	160	93	13.4	58.4	7.8	12,521	24.3	133.0	21.6
SWRNGNSA227	62	55	7.9	88.4	7.0	35,532	18.8	648.3	17.1
SWRNGNSA26	75	48	21.9	63.6	13.9	7,379	25.3	154.8	12.6

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 18 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
TCRAFTD	302	108	24.4	35.7	8.7	4,696	32.2	43.6	21.0
TCRAFTA	27	3	99.8	10.2	10.2	21	103.0	7.5	25.4
TCRAFTBC	1,850	1,117	11.8	60.4	7.1	41,790	18.6	37.4	14.3
TCRAFTBF	41	14	20.4	34.4	7.0	955	26.5	67.7	17.0
TCRAFTBL	221	74	20.0	33.5	6.7	2,161	25.7	29.2	16.0
TEMCO 11A	24	17	14.7	68.8	10.1	1,138	21.7	69.0	15.9
TH55	52	18	19.3	35.5	6.9	1,458	23.4	79.0	13.3
THUNDRAX7	86	86	0.0	100.0	0.0	2,012	19.5	21.9	23.6
TMPSONNAVION	621	346	23.7	55.7	13.2	17,433	34.6	50.4	25.3
TOMCAT	39	23	21.3	58.0	12.3	4,680	24.3	206.8	11.8
TRYTEK65	333	159	13.7	47.7	6.6	6,912	20.8	43.5	15.6
TRYTEKK	25	7	46.3	27.0	12.5	99	57.8	14.6	34.6
UNIVACGC1	671	386	11.6	57.6	6.7	12,902	21.1	33.4	17.6
UNIVAR108	2,013	867	13.4	43.1	5.7	46,460	20.4	53.6	15.4
UNIVAR415	2,398	1,388	11.2	57.9	6.5	45,321	18.0	32.7	14.0
VALENT17	21	21	0.0	100.0	0.0	848	11.7	37.8	12.8
VARGA 2150	129	114	10.7	88.3	9.5	5,486	21.0	48.2	18.1
WACO ASO	29	5	49.8	17.2	8.6	74	63.6	14.8	39.6
WACO GXE	35	7	33.9	19.7	6.7	76	36.2	11.0	12.9
WACO R	31	11	26.4	36.8	9.7	190	38.2	16.7	27.7
WACO UPF7	156	64	8.7	41.2	3.6	3,827	20.7	59.5	18.8

2.2 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 19 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
WACO YK	49	13	29.4	26.6	7.8	434	43.5	33.3	32.1
WSK M18	32	23	14.2	70.4	10.0	9,106	17.6	404.4	10.5
WTHRLY201	62	57	9.4	91.9	8.7	13,122	20.4	230.3	18.1
TOTAL	265,041	198,475	0.7	74.8	0.5	30,054,528	1.8	149.1	1.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.3 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALASKAN	9,351	6,616	6.6	70.8	6.2	995,338	8.5	141.2	9.8
CENTRAL	15,510	11,404	5.7	73.5	5.6	1,443,717	7.5	124.3	6.6
EASTERN	29,923	22,505	3.9	75.2	3.9	3,369,420	5.3	147.6	5.1
GREAT LAKES	47,190	34,792	3.1	73.7	3.0	4,530,601	4.3	128.6	4.3
NEW ENGLAND	10,296	8,269	6.8	80.3	7.5	1,212,374	9.5	146.7	7.0
NORTHWEST MT.	26,967	19,399	4.2	71.9	4.0	2,981,733	6.3	152.0	6.7
SOUTHERN	42,790	32,428	3.2	75.8	3.2	5,325,926	4.4	163.0	5.5
SOUTHWESTERN	34,976	26,517	3.6	75.8	3.6	4,663,147	5.3	173.6	6.3
WESTERN-PACIFIC	48,038	36,545	2.9	76.1	3.0	5,523,421	3.8	148.0	4.9
TOTAL	265,041	198,475	0.6	74.9	0.5	30,054,522	1.8	149.1	1.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.4 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 3

STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
ALABAMA	4,048	3,010	11.4	74.4	11.4	387,316	13.2	125.8	11.2
ALASKA	9,351	6,616	6.6	70.8	6.2	995,338	8.5	141.2	9.8
ARIZONA	6,601	4,789	8.9	72.5	8.5	853,710	12.3	174.3	12.7
ARKANSAS	2,798	2,206	13.1	78.9	14.0	401,385	14.3	178.5	11.7
CALIFORNIA	38,285	29,261	3.3	76.4	3.4	4,142,598	3.7	139.1	5.5
COLORADO	5,534	4,064	9.8	73.4	9.5	600,665	13.5	149.0	11.0
CONNECTICUT	2,318	1,872	14.7	80.8	16.0	257,176	20.7	136.2	15.6
DELAWARE	1,149	891	20.2	77.6	20.9	202,762	28.3	228.3	14.7
DIST. OF COLUMBIA	140	46	80.4	32.8	30.5	16,080	113.3	371.0	25.4
FLORIDA	16,600	12,336	5.4	74.3	5.4	2,237,371	7.2	185.0	11.9
GEORGIA	5,882	4,540	9.3	77.2	9.6	718,293	12.4	155.4	10.6
HAWAII	645	484	27.9	75.0	27.7	258,544	34.1	534.3	13.7
IDAHO	2,375	1,820	14.1	76.6	14.6	273,068	18.1	147.0	12.3
ILLINOIS	8,690	6,543	7.7	75.3	7.8	912,313	9.3	137.9	10.1
INDIANA	4,619	3,460	10.7	74.9	10.6	479,682	13.3	135.0	11.3
IOWA	3,414	2,597	12.4	76.1	12.5	320,432	15.1	122.5	9.9
KANSAS	4,547	3,421	10.7	75.2	10.7	386,828	13.4	114.4	10.6
KENTUCKY	1,949	1,446	16.7	74.2	16.5	237,585	19.2	154.4	17.5
LOUISIANA	3,529	2,843	11.4	80.6	12.5	976,103	17.1	338.8	19.6
MAINE	1,555	1,251	17.7	80.5	19.3	158,659	25.6	126.7	16.1
MARYLAND	3,212	2,717	12.3	84.6	14.3	311,294	15.4	112.6	12.2
MASSACHUSETTS	3,407	2,776	12.1	81.5	13.5	488,295	16.2	176.8	12.0
MICHIGAN	9,037	6,823	7.4	75.5	7.5	905,629	9.4	131.9	10.4

2.4 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 3

STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
MINNESOTA	5,930	4,097	9.7	69.1	8.8	546,484	13.8	132.7	14.0
MISSISSIPPI	2,314	1,770	14.8	76.5	15.3	290,066	17.1	158.1	15.6
MISSOURI	5,309	3,781	10.3	71.2	9.7	554,992	13.4	141.8	13.8
MONTANA	2,635	1,851	14.5	70.3	13.5	166,148	19.2	86.1	11.4
NEBRASKA	2,239	1,605	15.0	71.7	14.2	181,466	17.7	106.4	12.3
NEVADA	2,472	1,988	13.7	80.4	14.9	268,571	17.7	125.4	16.9
NEW HAMPSHIRE	1,815	1,393	17.0	76.8	17.5	172,351	20.4	123.6	15.2
NEW JERSEY	4,665	3,512	10.4	75.3	10.5	612,965	13.1	175.9	13.8
NEW MEXICO	2,560	1,891	13.8	73.8	13.6	266,927	16.5	142.8	20.7
NEW YORK	7,555	5,419	8.5	71.7	8.0	807,184	10.4	148.5	11.8
NORTH CAROLINA	5,806	4,493	9.3	77.4	9.7	705,327	12.1	156.9	14.4
NORTH DAKOTA	1,889	1,489	16.6	78.8	17.7	155,362	20.1	101.7	11.9
OHIO	9,334	6,919	7.4	74.1	7.3	915,754	9.5	131.1	10.3
OKLAHOMA	4,751	3,371	10.9	71.0	10.1	432,564	13.0	127.7	12.9
OREGON	6,062	4,559	9.0	75.2	9.1	563,377	11.0	118.0	10.3
PENNSYLVANIA	7,731	5,688	8.1	73.6	7.9	716,020	9.8	124.8	10.1
RHODE ISLAND	513	415	31.8	80.9	35.0	67,059	43.5	163.2	26.1
SOUTH CAROLINA	2,324	1,878	14.5	80.8	16.0	250,202	17.7	130.1	13.2
SOUTH DAKOTA	1,621	1,072	18.8	66.1	16.3	132,227	28.6	118.2	17.4
TENNESSEE	3,227	2,513	12.4	77.9	13.0	405,589	16.1	160.2	13.2
TEXAS	21,339	16,206	4.7	75.9	4.8	2,586,169	6.1	157.4	8.0
UTAH	1,357	1,031	19.3	76.0	19.7	209,761	27.5	205.4	25.9
VERMONT	689	561	26.4	81.5	29.2	68,835	34.0	121.4	15.2

2.4 1991 GENERAL AVIATION POPULATION SIZE, ACTIVE AIRCRAFT, TOTAL FLIGHT HOURS AND AVERAGE FLIGHT HOURS  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 3

STATE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS FLOWN	PERCENT STANDARD ERROR	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
VIRGINIA	4,157	3,288	10.7	79.1	11.5	602,638	13.6	173.8	12.5
WASHINGTON	8,039	5,376	8.3	66.9	7.2	1,040,872	11.9	193.9	15.9
WEST VIRGINIA	1,314	945	21.3	71.9	20.3	100,477	26.3	104.6	13.2
WISCONSIN	6,070	4,389	9.4	72.3	9.0	483,150	11.4	108.8	10.8
WYOMING	965	698	23.4	72.3	22.5	127,843	39.3	175.9	32.3
PUERTO RICO	570	394	30.7	69.0	28.0	72,175	36.0	131.5	42.4
OTHER U.S. TERRITORIES	104	72	62.5	69.3	57.5	22,001	59.0	293.4	55.8
TOTAL	265,041	198,475	0.6	74.9	0.5	30,054,682	11.7	149.1	1.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



2.5 1991 GENERAL AVIATION TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
<b>FIXED WING</b>										
<b>FIXED WING - PISTON</b>										
1 ENG: 1-3 SEATS	303,681	638,047	1,636,090	2,317,710	814,315	1,719,471	2,784,822	3,171,114	1,722,200	15,107,450
% STD. ERROR	23.1	24.2	24.8	15.0	25.7	23.8	17.0	18.9	19.8	7.3
1 ENG: 4+ SEATS	859,402	964,522	2,503,086	2,791,982	1,031,198	1,574,822	3,584,380	2,349,443	3,169,179	18,828,014
% STD. ERROR	20.9	22.4	14.8	14.1	20.8	12.4	13.7	18.1	11.3	5.3
1 ENGINE: TOTAL	1,163,083	1,602,569	4,139,176	5,109,692	1,845,513	3,294,293	6,369,202	5,520,557	4,891,379	33,935,464
% STD. ERROR	16.6	16.6	13.3	10.3	16.3	13.8	10.7	13.3	10.1	4.4
2 ENG: 1-6 SEATS	19,114	98,867	187,573	431,559	57,410	80,141	610,703	367,744	461,900	2,315,011
% STD. ERROR	72.4	28.4	24.2	19.2	47.4	40.4	24.7	27.8	29.7	10.9
2 ENG: 7+ SEATS	68,734	64,317	76,445	177,346	14,019	110,915	241,077	277,779	204,678	1,235,310
% STD. ERROR	44.2	34.1	35.7	18.1	60.2	34.4	36.7	36.7	18.8	12.7
2 ENGINE: TOTAL	87,848	163,184	264,018	608,905	71,429	191,056	851,780	645,523	666,578	3,550,321
% STD. ERROR	38.0	21.8	20.1	14.6	39.9	26.2	20.6	22.4	21.3	8.4
PISTON: OTHER	6,816	110	1,994	0	104	0	603	340	788	10,755
% STD. ERROR	53.0	850.6	151.5	0.0	5562.1	0.0	550.1	599.4	288.5	81.5
PISTON: TOTAL	1,257,747	1,765,863	4,405,188	5,718,597	1,917,046	3,485,349	7,221,585	6,166,420	5,558,745	37,496,540
% STD. ERROR	15.5	15.2	12.5	9.3	15.7	13.1	9.8	12.1	9.2	4.1
<b>FIXED WING- TURBOPROP</b>										
2 ENG: 1-12 SEATS	9,092	27,355	143,511	240,655	43,179	127,147	185,277	170,215	249,327	1,195,758
% STD. ERROR	105.3	42.2	38.0	18.1	49.7	32.3	18.3	25.5	32.7	10.9
2 ENG: 13+ SEATS	44,202	27,454	93,366	20,129	878	24,708	104,936	83,997	69,067	468,737
% STD. ERROR	40.6	41.0	37.0	19.6	34.5	55.1	15.8	49.3	26.0	13.8
2 ENGINE: TOTAL	53,294	54,809	236,877	260,784	44,057	151,855	290,213	254,212	318,394	1,664,495
% STD. ERROR	38.1	29.4	27.2	16.8	48.7	28.5	13.0	23.6	26.2	8.7
TURBOPROP: OTHER	0	8,913	816	6,984	71	46,610	55,095	204,787	45,831	369,107
% STD. ERROR	0.0	74.3	68.0	22.7	618.3	37.0	29.6	63.7	25.6	36.1
TURBOPROP: TOTAL	53,294	63,722	237,693	267,768	44,128	198,465	345,308	458,999	364,225	2,033,602
% STD. ERROR	38.1	27.3	27.1	16.3	48.6	23.4	11.9	31.3	23.1	9.7

2.5 1991 GENERAL AVIATION TOTAL NUMBER OF LANDINGS BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN- PACIFIC	TOTAL
<b>FIXED WING - TURBOJET</b>										
2 ENGINE: TOTAL	1,069	53,419	184,112	261,269	34,203	48,128	125,714	131,894	92,490	932,298
% STD. ERROR	257.0	26.1	15.9	16.9	31.8	30.3	18.0	17.8	23.2	7.5
TURBOJET: OTHER	78	1,913	7,770	6,770	1,074	1,342	3,529	11,138	5,260	38,874
% STD. ERROR	355.5	61.5	39.8	34.2	100.0	158.1	62.4	55.4	48.4	21.7
TURBOJET: TOTAL	1,147	55,332	191,882	268,039	35,277	49,470	129,243	143,032	97,750	971,172
% STD. ERROR	240.7	25.3	15.3	16.5	31.0	29.8	17.6	17.0	22.1	7.2
FIXED WING: TOTAL	1,312,188	1,884,917	4,834,763	6,254,404	1,996,451	3,733,284	7,696,136	6,768,451	6,020,720	40,501,314
% STD. ERROR	15.0	14.3	11.5	8.6	15.1	12.3	9.2	11.3	8.7	3.8
<b>ROTORCRAFT</b>										
PISTON	1,014	20,614	132,643	72,723	14,937	113,706	145,468	185,180	1,329,593	2,015,878
% STD. ERROR	95.9	27.8	32.3	28.9	39.0	55.6	32.3	55.0	33.4	23.1
TURBINE	113,969	197,552	616,986	254,046	141,037	788,055	435,401	990,733	1,187,772	4,725,551
% STD. ERROR	27.6	67.1	35.4	28.0	56.1	30.1	20.3	33.2	36.2	14.0
ROTORCRAFT: TOTAL	114,983	218,166	749,629	326,769	155,974	901,761	580,869	1,175,913	2,517,365	6,741,429
% STD. ERROR	27.4	60.8	29.7	22.7	50.8	27.2	17.2	29.3	24.6	12.0
OTHER AIRCRAFT	1,614	22,540	90,195	66,450	35,330	43,488	93,570	50,922	331,818	735,927
% STD. ERROR	124.6	69.2	47.4	37.5	54.9	53.0	38.5	73.5	25.8	15.9
TOTAL	1,428,785	2,125,623	5,674,587	6,647,623	2,187,755	4,678,533	8,370,575	7,995,286	8,869,903	47,978,670
% STD. ERROR	13.9	14.1	10.6	8.2	14.3	11.1	8.5	10.5	9.2	3.6

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.6 1991 GENERAL AVIATION NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
<b>FIXED WING</b>										
<b>FIXED WING - PISTON</b>										
1 ENG: 1-3 SEATS	243,544	526,138	1,352,534	2,010,852	676,230	1,318,013	2,449,269	2,875,611	1,431,207	12,883,398
% STD. ERROR	26.3	20.9	23.3	16.3	25.4	17.1	17.9	19.7	20.0	7.3
1 ENG: 4+ SEATS	287,444	619,899	1,825,512	1,776,956	655,705	1,003,242	2,446,832	1,633,876	1,843,409	12,092,875
% STD. ERROR	21.8	27.0	17.6	17.1	22.7	14.9	16.4	21.8	15.5	6.6
1 ENGINE: TOTAL	530,988	1,146,037	3,178,046	3,787,808	1,331,935	2,321,255	4,896,101	4,509,487	3,274,616	24,976,273
% STD. ERROR	16.9	17.5	14.2	11.8	17.1	11.7	11.8	14.8	12.4	4.9
2 ENG: 1-6 SEATS	6,412	23,766	83,832	143,867	27,999	29,541	282,577	197,602	268,103	1,063,699
% STD. ERROR	87.2	54.9	35.9	28.7	55.1	81.4	31.9	43.8	43.4	17.0
2 ENG: 7+ SEATS	21,903	19,001	21,568	27,386	2,522	11,051	124,470	28,333	50,832	307,066
% STD. ERROR	57.7	69.9	74.5	80.8	222.4	154.0	66.1	163.9	58.9	34.5
2 ENGINE: TOTAL	28,315	42,767	105,400	171,253	30,521	40,592	407,047	225,935	318,935	1,370,765
% STD. ERROR	48.8	43.5	32.4	27.4	53.8	72.6	30.0	43.5	37.7	15.3
PISTON: OTHER	6,816	26	0	0	104	0	297	222	667	8,132
% STD. ERROR	67.0	2637.1	0.0	0.0	3892.4	0.0	869.6	740.4	211.4	86.1
PISTON: TOTAL	566,119	1,188,830	3,283,446	3,959,061	1,362,560	2,361,847	5,303,445	4,735,644	3,594,218	26,355,170
% STD. ERROR	16.0	16.9	13.7	11.4	16.7	11.5	11.2	14.3	11.7	4.7
<b>FIXED WING- TURBOPROP</b>										
2 ENG: 1-12 SEATS	106	3,053	70,876	12,285	7,078	12,053	10,981	17,007	76,683	210,122
% STD. ERROR	269.5	119.1	68.1	90.4	54.3	69.3	160.1	120.7	64.1	35.9
2 ENG: 13+ SEATS	5,479	924	4,249	7,319	38	9,906	2,731	9,199	46,545	86,390
% STD. ERROR	58.9	211.7	65.6	48.5	1134.4	143.2	80.0	64.7	34.0	26.5
2 ENGINE: TOTAL	5,585	3,977	75,125	19,604	7,116	21,959	13,712	26,206	123,228	296,512
% STD. ERROR	58.0	103.8	64.3	59.5	54.4	74.9	129.2	81.5	41.9	26.6
TURBOPROP: OTHER	0	8,849	621	4,807	71	24,841	49,573	195,420	27,813	311,995
% STD. ERROR	0.0	76.2	70.6	31.9	408.4	61.3	33.4	66.1	30.0	42.2
TURBOPROP: TOTAL	5,585	12,826	75,746	24,411	7,187	46,800	63,285	221,626	151,041	608,507
% STD. ERROR	58	61.6	63.8	48.2	54.0	47.9	38.3	59.1	34.6	25.2

2.6 1991 GENERAL AVIATION NUMBER OF LANDINGS IN LOCAL FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	27	3,259	24,853	11,876	801	5,935	6,873	13,434	14,814	81,872
% STD. ERROR	828.1	119.4	66.6	67.3	330.7	220.2	186.9	103.3	96.7	40.4
TURBOJET: OTHER										
% STD. ERROR	13	29	381	210	134	178	326	384	958	2,613
	1057.0	1368.9	396.1	671.9	419.6	874.2	170.6	202.3	187.3	128.7
TURBOJET: TOTAL										
% STD. ERROR	40	3,288	25,234	12,086	935	6,113	7,199	13,818	15,772	84,485
	656.1	119.0	65.9	67.1	289.6	215.3	178.6	100.6	91.5	39.3
FIXED WING: TOTAL										
% STD. ERROR	571.44	1,204,944	3,384,426	3,995,558	1,370,682	2,414,760	5,373,929	4,971,088	3,761,031	27,048,162
	15.9	16.7	13.4	11.3	16.6	11.3	11.0	13.9	11.3	4.7
ROTORCRAFT										
PISTON										
% STD. ERROR	398	19,174	113,009	67,897	12,627	85,817	120,371	157,199	1,284,950	1,861,442
	118.0	30.8	35.4	31.8	41.4	49.4	37.5	53.6	34.8	24.8
TURBINE										
% STD. ERROR	60,963	151,039	384,662	134,741	18,717	664,358	343,116	789,788	1,047,454	3,594,838
	35.6	79.0	49.2	34.4	36.6	36.3	25.1	41.4	40.6	17.7
ROTORCRAFT: TOTAL										
% STD. ERROR	61,361	170,213	497,671	202,638	31,344	750,175	463,487	946,987	2,332,404	5,456,280
	35.4	70.1	38.9	25.2	27.5	32.7	21.0	35.7	26.4	14.4
OTHER AIRCRAFT										
% STD. ERROR	1,121	21,578	85,888	60,831	33,526	41,607	86,828	49,750	321,656	702,785
	88.7	47.9	38.1	26.4	43.1	40.1	32.3	58.5	26.6	14.8
TOTAL										
% STD. ERROR	634,226	1,396,735	3,967,985	4,259,027	1,435,552	3,206,542	5,924,244	5,967,825	6,415,091	33,207,227
	14.7	16.8	12.5	10.6	15.9	11.5	10.2	12.9	11.8	4.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

2.7 1991 GENERAL AVIATION NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
<b>FIXED WING</b>										
<b>FIXED WING - PISTON</b>										
1 ENG: 1-3 SEATS	60,011	108,782	286,732	306,286	137,762	401,218	335,760	290,739	289,718	2,217,008
% STD. ERROR	60.4	52.3	35.0	12.4	30.5	52.8	19.4	25.6	27.4	12.7
1 ENG: 4+ SEATS	573,464	343,965	677,069	1,015,636	375,445	569,473	1,135,505	714,780	1,323,685	6,729,022
% STD. ERROR	26.8	16.6	10.1	10.9	20.8	13.4	11.7	13.8	10.5	4.8
1 ENGINE: TOTAL	633,475	452,747	53,801	1,321,922	513,207	970,691	1,471,265	1,005,519	1,613,403	8,946,030
% STD. ERROR	24.9	17.8	12.6	8.9	17.3	23.2	10.1	12.3	9.9	4.8
2 ENG: 1-6 SEATS	12,854	75,128	103,731	286,859	29,159	50,726	325,748	169,919	195,084	1,249,208
% STD. ERROR	77.7	30.1	24.2	23.1	45.2	26.4	29.3	22.3	19.7	10.7
2 ENG: 7+ SEATS	45,792	45,428	55,062	149,512	11,509	98,673	114,845	248,876	152,536	922,233
% STD. ERROR	60.1	34.1	28.6	18.6	45.5	36.0	19.9	44.7	22.5	14.3
2 ENGINE: TOTAL	58,646	120,556	158,793	436,371	40,668	149,399	440,593	418,795	347,620	2,171,441
% STD. ERROR	49.9	22.7	18.7	16.4	34.9	25.4	22.3	28.0	14.8	8.7
PISTON: OTHER	0	84	1,994	0	0	0	306	118	121	2,623
% STD. ERROR	0.0	455.0	162.8	0.0	0.0	0.0	345.7	519.3	453.2	134.7
PISTON: TOTAL	692,121	573,387	1,124,588	1,758,293	553,875	1,120,090	1,912,164	1,424,432	1,961,144	11,120,094
% STD. ERROR	23.2	14.9	11.1	7.8	16.2	20.4	9.3	12.0	8.6	4.2
<b>FIXED WING- TURBOPROP</b>										
2 ENG: 1-12 SEATS	9,023	24,369	69,593	228,169	35,284	114,411	174,802	152,746	173,203	981,600
% STD. ERROR	108.9	43.5	28.9	20.0	53.3	36.0	20.7	28.8	42.0	11.7
2 ENG: 13+ SEATS	35,479	26,491	84,895	12,545	840	15,768	101,724	74,805	23,663	376,210
% STD. ERROR	48.0	45.0	41.7	25.1	60.4	54.6	17.4	59.6	45.9	17.2
2 ENGINE: TOTAL	44,502	50,860	154,488	240,714	36,124	130,179	276,526	227,551	196,866	1,357,810
% STD. ERROR	44.2	31.3	26.4	19.0	52.0	32.3	14.6	27.5	37.4	9.7
TURBOPROP: OTHER	0	57	194	2,687	0	22,526	6,340	4,741	14,556	51,101
% STD. ERROR	0.0	365.0	89.7	22.1	0.0	62.6	72.0	53.3	67.9	35.2
TURBOPROP: TOTAL	44,502	50,917	154,682	243,401	36,124	152,705	282,866	232,292	211,422	1,408,911
% STD. ERROR	44.2	31.3	26.3	18.8	52.0	29.1	14.4	27.0	35.1	9.5

2.7 1991 GENERAL AVIATION NUMBER OF LANDINGS IN CROSS COUNTRY FLIGHT BY REGION OF BASED AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ALASKAN	CENTRAL	EASTERN	GREAT LAKES	NEW ENGLAND	NORTHWEST MOUNTAIN	SOUTHERN	SOUTH WESTERN	WESTERN-PACIFIC	TOTAL
FIXED WING - TURBOJET										
2 ENGINE: TOTAL	1,042	50,225	159,810	248,818	33,408	42,242	118,731	117,553	77,345	849,174
% STD. ERROR	259.2	29.0	18.6	19.7	41.0	23.7	20.9	19.8	26.6	8.6
TURBOJET: OTHER										
% STD. ERROR	64	1,896	7,533	6,555	939	1,156	3,211	11,003	4,323	36,570
	290.4	62.6	33.8	36.7	104.5	76.3	48.4	67.9	43.5	24.0
TURBOJET: TOTAL	1,106	52,111	167,343	255,373	34,347	43,398	121,942	128,556	81,668	885,844
% STD. ERROR	244.7	28.0	17.8	19.2	40.0	23.1	20.4	19.0	25.3	8.3
FIXED WING: TOTAL	737,729	676,415	1,446,613	2,257,067	624,346	1,316,193	2,316,972	1,785,280	2,254,234	13,414,849
% STD. ERROR	21.9	13.0	9.3	6.8	14.9	17.7	7.9	10.3	8.2	3.7
ROTORCRAFT										
PISTON	629	1,478	19,230	4,241	2,385	26,015	24,863	29,047	41,221	149,109
% STD. ERROR	89.7	49.8	38.4	106.9	76.9	73.7	59.0	62.9	43.7	24.4
TURBINE	50,723	47,980	236,961	117,701	123,076	123,655	92,588	208,106	130,405	1,131,195
% STD. ERROR	40.1	43.3	38.9	38.3	69.2	38.4	18.8	22.2	30.3	13.9
ROTORCRAFT: TOTAL	51,352	49,458	256,191	121,942	125,461	149,670	117,451	237,153	171,626	1,280,304
% STD. ERROR	39.6	42.0	36.1	37.1	67.9	34.2	19.4	20.9	25.3	12.6
OTHER AIRCRAFT	566	963	4,696	5,208	2,133	1,914	7,059	1,136	9,580	33,255
% STD. ERROR	171.6	88.9	83.1	120.2	96.0	182.7	79.3	469.9	58.7	38.5
TOTAL	789,647	726,836	1,707,500	2,384,217	751,940	1,467,777	2,441,482	2,023,569	2,435,440	14,728,408
% STD. ERROR	20.6	12.4	9.6	6.7	16.8	16.2	7.6	9.4	7.8	3.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

## CHAPTER III

### PRIMARY USE

The general aviation fleet is used to provide a wide array of services, such as air taxi, air cargo, industrial, agricultural, business, personal/recreation, instructional, research, patrol and sport fishing. This chapter considers the major uses of the general aviation fleet. Eleven primary use categories for general aviation aircraft are defined in the glossary section of Appendix D.

This chapter consists of three tables and one figure. Table 3.1 presents the estimated number of general aviation aircraft, broken down by primary use category (as well as inactive status) and aircraft type. Table 3.2 presents the estimated total hours by aircraft type in each primary use category. The final table in this chapter, Table 3.3, provides data on the estimated number of nautical miles flown by primary use and aircraft type. Figure 3.1 displays data on the general aviation population's total hours flown by primary use.

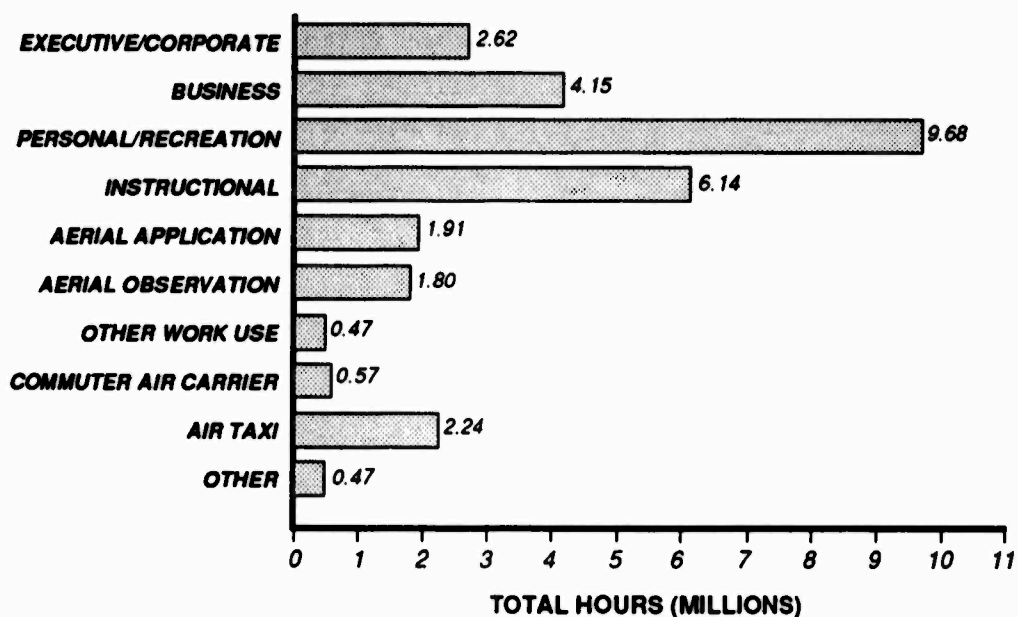
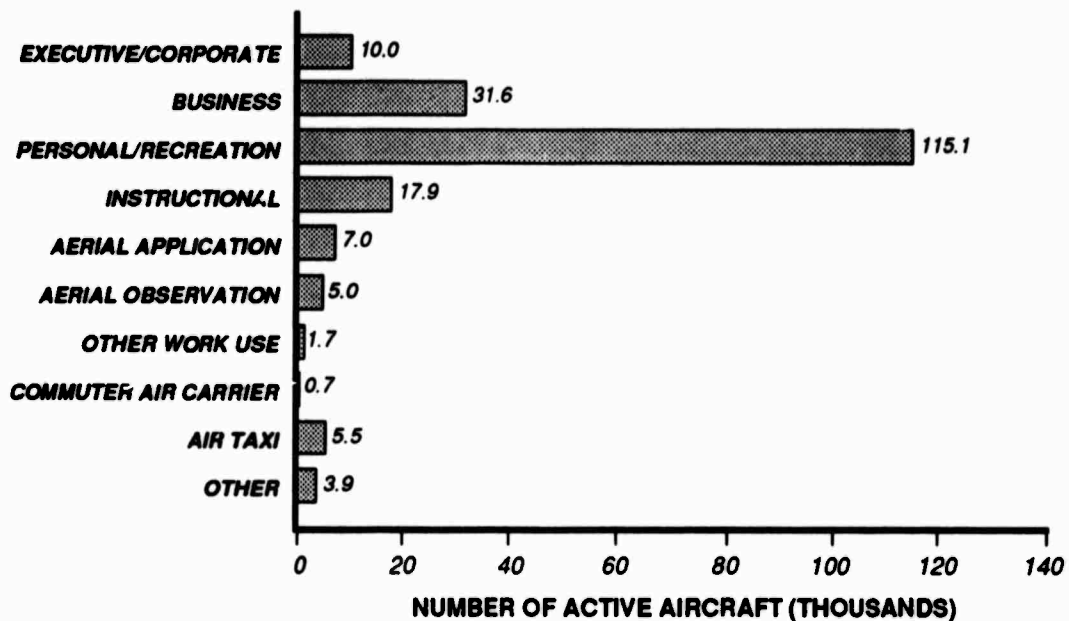
Some key observations to be drawn from the figures and tables in this chapter are:

- o Of the 265,041 aircraft in the general aviation fleet, 198,475 aircraft (74.9 percent) were active.
- o The most frequent primary use category of the general aviation fleet was personal. Nearly 58 percent of the active aircraft in the general aviation fleet fell into this category. The second and third most frequent use categories were business, with 16 percent of active aircraft, and instructional, with 9 percent.
- o About 62 percent of the active fixed wing piston aircraft, and more than 74 percent of the aircraft listed in the "other" aircraft type category, were used primarily for personal use.
- o Of the 175,347 active fixed wing piston aircraft, about 9 percent (16,196 aircraft) were used for instructional purposes. These active instructional fixed wing piston aircraft accounted for 90 percent of the 17,901 general aviation aircraft used for instructional purposes.
- o The general aviation fleet flew nearly 9.7 million personal use hours in 1991, accounting for more than 32 percent of the total flight hours. The next closest use category, instructional, totaled more than 6.1 million hours, or 20 percent of the total hours flown.
- o More than 68 percent of the active turbojet and 48 percent of the active turboprop aircraft were used primarily for executive/corporate purposes. Rotorcraft primary uses were spread broadly across the various use categories, with 16 percent of active aircraft each for aerial application and aerial observation, and 14 percent for air taxi.

- o In terms of inactive aircraft, rotorcraft had the highest percentage inactive within its own aircraft type; 4,182 rotorcraft, or 40 percent of the total registered rotorcraft, were inactive. The majority of inactive rotorcraft (81 percent) were piston rotorcraft, and inactive piston rotorcraft (3,378 rotorcraft) outnumbered active piston rotorcraft (2,470 rotorcraft).
- o The general aviation fleet flew more than 3.9 billion nautical miles in 1991. Nearly 1.2 billion nautical miles were flown in the personal use category, and the fixed wing piston aircraft group alone accounted for 98 percent of the nautical miles flown in this use category. The fixed wing piston aircraft also flew the most nautical miles of any aircraft group, more than 2.9 billion nautical miles of the 3.9 billion flown by the general aviation fleet.



**Figure 3.1**  
**1991 GENERAL AVIATION NUMBER OF ACTIVE AIRCRAFT**  
**AND TOTAL HOURS BY PRIMARY USE**



**SOURCE: Tables 3.1 and 3.2**

3.1 1991 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 1 OF 3

ACTIVE USE

AIRCRAFT TYPE	TOTAL ACTIVE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	IN- ACTIVE
<b>FIXED WING</b>												
<b>FIXED WING - PISTON</b>												
1 ENG: 1-3 SEATS												
EST. NO. ACTIVE	55,652	33	2,234	38,035	8,006	5,002	751	415	0	0	1,176	32,670
% STD. ERROR	1.6	79.4	12.7	1.6	6.2	3.2	21.9	28.7	0.0	0.0	17.7	
EST. % ACTIVE	63.0											
1 ENG: 4+ SEATS												
EST. NO. ACTIVE	98,450	1,290	20,304	64,376	7,148	215	2,490	505	172	1,345	606	19,599
% STD. ERROR	0.8	17.6	3.9	1.5	7.7	42.6	13.0	27.5	35.5	15.5	23.3	
EST. % ACTIVE	83.4											
<b>1 ENGINE: TOTAL</b>												
EST. NO. ACTIVE	154,102	1,323	22,538	102,411	15,154	5,217	3,240	921	172	1,345	1,782	52,269
% STD. ERROR	0.8	17.3	3.7	1.1	4.9	3.5	11.2	19.9	35.5	15.5	14.1	
EST. % ACTIVE	74.7											
<b>2 ENG: 1-6 SEATS</b>												
EST. NO. ACTIVE	13,561	1,007	5,310	4,767	909	230	316	30	35	634	324	3,798
% STD. ERROR	2.5	15.4	6.2	7.0	19.0	36.5	36.4	46.6	127.0	24.5	30.9	
EST. % ACTIVE	78.1											
<b>2 ENG: 7+ SEATS</b>												
EST. NO. ACTIVE	7,557	1,582	2,286	1,145	133	318	137	63	161	1,517	215	907
% STD. ERROR	1.7	14.0	10.9	16.3	60.9	29.9	29.2	39.0	40.1	13.8	35.4	
EST. % ACTIVE	89.3											
<b>2 ENGINE: TOTAL</b>												
EST. NO. ACTIVE	21,119	2,589	7,596	5,912	1,042	547	453	93	196	2,151	539	4,704
% STD. ERROR	1.7	10.5	5.4	6.4	18.3	23.1	26.9	30.4	40.0	12.1	23.3	
EST. % ACTIVE	81.8											
<b>PISTON: OTHER</b>												
EST. NO. ACTIVE	127	0	7	29	0	23	0	11	7	10	41	145
% STD. ERROR	22.2	0.0	144.0	41.5	0.0	37.7	0.0	66.8	144.0	109.0	33.9	
EST. % ACTIVE	46.6											
<b>PISTON: TOTAL</b>												
EST. NO. ACTIVE	175,347	3,912	30,140	108,353	16,196	5,788	3,694	1,025	374	3,506	2,362	57,119
% STD. ERROR	0.7	9.1	3.1	1.1	4.7	3.9	10.3	18.1	26.6	9.5	11.9	
EST. % ACTIVE	75.4											

3.1 1991 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 2 OF 3

ACTIVE USE

AIRCRAFT TYPE	TOTAL ACTIVE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	IN- ACTIVE
FIXED WING - TURBOPROP 2 ENG: 1-12 SEATS												
EST. NO. ACTIVE	3,820	2,163	635	166	95	0	20	1	85	505	149	662
% STD. ERROR	2.8	5.8	14.8	36.2	43.2	0.0	77.0	145.7	38.6	17.0	35.6	
EST. % ACTIVE	85.2											
2 ENG: 13+ SEATS												
EST. NO. ACTIVE	577	184	5	14	39	1	0	8	215	85	27	676
% STD. ERROR	13.0	11.2	114.8	64.0	31.5	267.6	0.0	75.8	10.5	21.1	46.3	
EST. % ACTIVE	46.1											
2 ENGINE: TOTAL												
EST. NO. ACTIVE	4,398	2,347	640	180	134	1	20	9	300	590	175	1,337
% STD. ERROR	3.0	5.4	14.7	33.8	32.0	267.6	77.0	68.3	13.3	14.8	31.0	
EST. % ACTIVE	76.7											
TURBOPROP: OTHER												
EST. NO. ACTIVE	522	18	6	43	0	182	1	4	12	97	160	22
% STD. ERROR	2.4	123.0	265.0	88.2	0.0	13.1	627.3	311.1	182.2	25.4	30.4	
EST. % ACTIVE	96.0											
TURBOPROP: TOTAL												
EST. NO. ACTIVE	4,920	2,365	646	224	134	183	21	13	312	687	335	1,359
% STD. ERROR	2.7	5.4	14.8	32.1	32.0	13.1	80.0	111.7	14.6	13.2	21.8	
EST. % ACTIVE	78.4											
FIXED WING - TURBOJET												
2 ENGINE: TOTAL												
EST. NO. ACTIVE	4,066	2,768	376	126	2	0	13	9	6	444	323	337
% STD. ERROR	1.9	4.6	22.0	38.8	344.2	0.0	86.9	103.7	251.3	19.8	23.7	
EST. % ACTIVE	92.4											
TURBOJET: OTHER												
EST. NO. ACTIVE	286	203	2	16	4	0	0	10	0	3	48	352
% STD. ERROR	14.4	6.3	142.7	42.1	41.2	0.0	0.0	60.4	0.0	113.4	24.0	
EST. % ACTIVE	44.9											
TURBOJET: TOTAL												
EST. NO. ACTIVE	4,353	2,971	378	142	6	0	13	19	6	447	370	688
% STD. ERROR	2.0	4.3	21.9	34.8	110.1	0.0	86.9	58.2	251.3	19.6	20.9	
EST. % ACTIVE	86.3											

3.1 1991 GENERAL AVIATION NUMBER OF AIRCRAFT BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	ACTIVE USE											IN- ACTIVE
	TOTAL ACTIVE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMOTER CARRIER	AIR TAXI	OTHER	
FIXED WING: TOTAL												
EST. NO. ACTIVE	184,620	9,248	31,164	108,718	16,336	5,971	3,728	1,057	692	4,639	3,067	59,166
% STD. ERROR	0.7	4.3	3.0	1.1	4.7	3.8	10.3	17.6	16.0	7.7	9.8	
EST. % ACTIVE	75.7											
ROTORCRAFT												
PISTON												
EST. NO. ACTIVE	2,470	76	136	509	738	544	253	59	0	15	141	3,378
% STD. ERROR	7.6	60.4	37.2	14.2	13.8	16.1	27.7	78.5	0.0	126.4	34.7	
EST. % ACTIVE	42.2											
TURBINE												
EST. NO. ACTIVE	3,822	593	230	237	53	491	774	243	5	847	348	804
% STD. ERROR	2.9	19.5	29.3	30.9	75.0	19.4	18.1	21.4	210.2	16.1	25.2	
EST. % ACTIVE	82.6											
ROTORCRAFT: TOTAL												
EST. NO. ACTIVE	6,292	669	366	746	791	1,035	1,027	302	5	861	489	4,182
% STD. ERROR	3.5	18.6	23.0	13.8	13.8	12.5	15.3	23.0	210.2	16.0	20.5	
EST. % ACTIVE	60.1											
OTHER AIRCRAFT												
EST. NO. ACTIVE	7,563	116	53	5,605	774	0	291	317	41	0	366	3,218
% STD. ERROR	1.9	49.4	80.6	3.2	14.8	0.0	30.9	27.8	83.6	0.0	23.8	
EST. % ACTIVE	70.2											
TOTAL												
EST. NO. ACTIVE	198,475	10,033	31,583	115,069	17,901	7,006	5,045	1,676	738	5,501	3,922	66,566
% STD. ERROR	0.7	4.2	3.0	1.1	4.4	3.7	8.4	13.0	15.7	6.9	8.4	
EST. % ACTIVE	74.9											

3.2 1991 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 1 OF 3

PRIMARY USE

AIRCRAFT TYPE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	TOTAL
<b>FIXED WING - PISTON</b>											
1 ENG: 1-3 SEATS											
EST. TOT. HOURS	734	205,454	2,059,353	2,804,389	1,383,297	144,447	105,404	0	0	59,060	6,768,649
% STD. ERROR	79.4	18.8	4.3	8.9	5.6	24.1	30.6	0.0	0.0	18.8	4.2
1 ENG: 4+ SEATS											
EST. TOT. HOURS	220,953	2,700,813	6,637,398	2,531,851	73,776	772,331	115,369	118,973	541,826	58,298	13,771,588
% STD. ERROR	21.7	5.1	3.2	11.0	52.6	19.3	32.3	35.0	19.8	24.1	2.8
1 ENGINE: TOTAL											
EST. TOT. HOURS	221,687	2,906,267	8,696,751	5,336,241	1,457,073	916,778	220,773	118,973	541,826	117,359	20,540,232
% STD. ERROR	21.5	5.0	2.6	7.0	5.8	16.5	22.4	35.0	19.8	14.9	2.3
2 ENG: 1-6 SEATS											
EST. TOT. HOURS	226,286	724,227	526,186	335,906	31,189	114,542	6,456	18,019	176,089	12,473	2,171,373
% STD. ERROR	18.3	8.2	10.0	21.9	36.9	38.3	49.8	127.0	25.5	31.8	5.4
2 ENG: 7+ SEATS											
EST. TOT. HOURS	312,603	290,651	89,036	69,496	37,591	29,682	11,893	108,518	405,652	28,647	1,383,892
% STD. ERROR	18.6	14.2	18.9	65.5	30.7	35.8	43.4	41.6	16.0	30.9	6.3
2 ENGINE: TOTAL											
EST. TOT. HOURS	538,889	1,014,878	615,222	405,402	68,780	144,224	18,348	126,538	581,741	41,120	3,555,265
% STD. ERROR	13.3	7.2	9.2	20.6	23.6	30.4	33.5	39.9	13.5	19.7	4.1
<b>PISTON: OTHER</b>											
EST. TOT. HOURS	0	143	3,862	0	785	0	252	795	296	539	6,673
% STD. ERROR	0.0	144.0	30.3	0.0	59.6	0.0	66.8	144.0	109.0	72.7	33.5
PISTON: TOTAL											
EST. TOT. HOURS	760,576	3,921,288	9,315,835	5,741,642	1,526,638	1,061,002	239,374	246,306	1,123,863	159,018	24,102,168
% STD. ERROR	11.3	4.1	2.5	6.7	5.9	15.1	20.7	26.8	12.2	12.2	2.1

3.2 1991 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	PRIMARY USE										
	CORP-ORATE	BUSI-NESS	PER-SONAL	INSTRUC-TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMPUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS											
EST. TOT. HOURS	574,556	96,926	29,523	36,596	0	5,934	502	92,118	200,078	18,973	1,055,207
% STD. ERROR	7.6	18.3	39.3	50.9	0.0	82.6	145.7	41.0	18.4	36.9	5.7
2 ENG: 13+ SEATS											
EST. TOT. HOURS	45,385	1,637	196	5,999	167	0	4,525	213,095	28,245	4,267	303,517
% STD. ERROR	14.2	114.8	64.0	42.7	267.6	0.0	68.9	12.9	23.4	58.5	16.4
2 ENGINE: TOTAL											
EST. TOT. HOURS	619,941	98,563	29,719	42,596	167	5,934	5,027	305,213	228,323	23,240	1,358,723
% STD. ERROR	7.2	18.1	38.7	45.8	267.6	82.6	61.6	14.7	16.4	32.6	5.8
TURBOPROP: OTHER											
EST. TOT. HOURS	5,044	1,330	2,974	0	81,774	93	702	5,346	43,695	12,987	153,945
% STD. ERROR	113.0	254.3	89.3	0.0	14.9	627.3	316.1	182.2	27.7	75.8	12.8
TURBOPROP: TOTAL											
EST. TOT. HOURS	624,985	99,894	32,693	42,596	81,941	6,027	5,729	310,559	272,018	36,227	1,512,668
% STD. ERROR	7.2	18.0	35.1	45.8	15.0	84.1	87.9	15.7	14.6	37.1	5.3
FIXED WING - TURBOJET											
2 ENGINE: TOTAL											
EST. TOT. HOURS	832,659	82,193	20,104	40	0	8,750	1,140	4,282	185,064	48,347	1,182,578
% STD. ERROR	6.5	25.3	46.0	344.2	0.0	100.6	114.8	251.3	21.6	26.2	4.7
TURBOJET: OTHER											
EST. TOT. HOURS	45,460	326	3,271	25	0	0	192	0	594	3,838	53,705
% STD. ERROR	10.2	164.2	41.0	41.2	0.0	0.0	60.4	0.0	113.4	34.3	15.1
TURBOJET: TOTAL											
EST. TOT. HOURS	878,119	82,518	23,375	65	0	8,750	1,332	4,282	185,657	52,185	1,236,283
% STD. ERROR	6.1	25.2	40.5	96.6	0.0	100.6	46.9	251.3	21.5	23.1	4.5
FIXED WING: TOTAL											
EST. TOT. HOURS	2,263,679	4,103,699	9,371,905	5,784,303	1,608,579	1,075,779	246,434	561,147	1,581,538	247,429	26,851,118
% STD. ERROR	5.3	4.0	2.5	6.7	5.7	14.9	20.1	16.3	9.6	10.7	1.9

3.2 1991 GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE  
BY AIRCRAFT TYPE

PAGE 3 OF 3

PRIMARY USE

AIRCRAFT TYPE	CORP- ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMBATER CARRIER	AIR TAXI	OTHER	TOTAL
<b>ROTORCRAFT</b>											
PISTON											
EST. TOT. HOURS	4,707	12,572	21,963	243,088	137,489	130,698	17,907	0	2,502	13,569	584,644
% STD. ERROR	93.6	37.6	19.8	17.8	22.1	29.5	81.8	0.0	130.8	55.2	12.0
<b>TURBINE</b>											
EST. TOT. HOURS	319,285	34,652	27,830	11,989	164,890	568,868	191,710	3,224	657,035	192,427	2,171,911
% STD. ERROR	28.7	30.6	37.0	77.8	24.6	22.4	25.3	225.0	29.8	30.3	9.0
<b>ROTORCRAFT: TOTAL</b>											
EST. TOT. HOURS	323,993	47,224	49,793	255,077	302,379	699,566	209,617	3,224	659,537	205,996	2,756,555
% STD. ERROR	27.9	23.8	18.0	17.5	16.4	19.0	26.1	225.0	29.6	25.4	7.5
<b>OTHER AIRCRAFT</b>											
EST. TOT. HOURS	29,595	3,325	263,091	101,742	0	22,006	14,708	5,200	0	19,692	459,359
% STD. ERROR	112.1	83.0	7.8	22.1	0.0	32.5	34.3	83.6	0.0	26.3	8.9
<b>TOTAL</b>											
EST. TOT. HOURS	2,617,266	4,154,249	9,684,792	6,141,122	1,910,958	1,797,351	470,760	569,571	2,241,076	473,118	30,067,032
% STD. ERROR	5.8	4.0	2.4	6.3	5.4	11.4	13.4	15.7	10.8	10.1	1.8

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

## 3.3 1991 GENERAL AVIATION NAUTICAL MILES FLOWN BY PRIMARY USE BY AIRCRAFT TYPE

PAGE 1 OF 2

## NAUTICAL MILES (IN THOUSANDS)

AIRCRAFT TYPE	CORP ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING - PISTON											
1 ENG: 1-3 SEATS	66	26,727	264,685	324,796	156,329	15,710	13,219	0	0	5,987	807,520
1 ENG: 4+ SEATS	19,825	351,372	802,442	244,176	8,720	79,158	14,743	14,208	64,502	6,368	1,605,512
1 ENGINE: TOTAL	19,891	378,099	1,067,127	568,972	165,049	94,867	27,962	14,208	64,502	12,356	2,413,032
2 ENG: 1-6 SEATS	30,767	106,891	79,892	32,390	4,803	17,647	1,132	2,674	26,405	1,596	304,196
2 ENG: 7+ SEATS	42,372	45,158	14,316	7,073	6,040	4,982	2,077	14,955	60,519	3,813	201,306
2 ENGINE: TOTAL	73,138	152,050	94,208	39,463	10,843	22,630	3,208	17,629	86,924	5,409	505,502
PISTON OTHER	0	30	882	0	147	0	48	168	65	85	1,425
PISTON TOTAL	93,029	530,179	1,162,217	608,435	176,038	117,497	31,218	32,005	151,492	17,850	2,919,959
FIXED WING - TURBOPROP											
2 ENG: 1-12 SEATS	108,181	21,147	5,719	6,872	0	1,325	113	18,461	43,196	2,756	207,769
2 ENG: 13+ SEATS	9,563	343	33	1,263	36	0	894	41,536	5,427	513	59,609
2 ENGINE: TOTAL	117,744	21,491	5,752	8,135	36	1,325	1,006	59,997	48,623	3,269	267,379
TURBOPROP: OTHER	595	250	515	0	10,944	18	136	969	7,415	1,606	22,448
TURBOPROP: TOTAL	118,339	21,741	6,267	8,135	10,980	1,343	1,142	60,967	56,038	4,874	289,827



# 3.3 1991 GENERAL AVIATION NAUTICAL MILES FLOWN BY PRIMARY USE BY AIRCRAFT TYPE

PAGE 2 OF 2

## NAUTICAL MILES (IN THOUSANDS)

AIRCRAFT TYPE	CORP ORATE	BUSI- NESS	PER- SONAL	INSTRUC- TIONAL	AERIAL APPL	AERIAL OBS	OTHER WORK	COMMUTER CARRIER	AIR TAXI	OTHER	TOTAL
FIXED WING - TURBOJET											
2 ENGINE: TOTAL	323,144	32,519	6,959	11	0	0	484	1,801	75,617	19,878	460,413
TURBOJET: OTHER	21,085	153	1,719	10	0	0	84	0	276	1,895	25,221
TURBOJET: TOTAL	344,228	32,671	8,677	21	0	0	568	1,801	75,893	21,773	485,634
FIXED WING: TOTAL	555,597	584,592	1,177,161	616,591	187,018	118,840	32,929	94,773	283,423	44,497	3,695,420
ROTORCRAFT											
PISTON	245	824	1,260	12,424	8,763	8,109	794	0	156	750	33,325
TURBINE	34,612	3,139	2,757	1,067	17,251	58,247	18,888	153	28,638	14,589	179,343
ROTORCRAFT: TOTAL	34,857	3,963	4,018	13,491	26,014	66,356	19,683	153	28,794	15,339	212,668
OTHER AIRCRAFT	309	36	7,014	2,420	0	0	0	0	0	235	10,013
TOTAL	590,763	588,591	1,188,193	632,501	213,032	185,196	52,611	94,926	312,216	60,071	3,918,103

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

## CHAPTER IV

### FLYING CONDITIONS

This chapter presents statistics on the meteorological conditions under which the general aviation fleet flies. In order to capture more precise flying conditions data, Questions 10 and 11 of the 1991 GAAA Survey form were modified from last year's Survey form to include the number of hours flown by visual flight rules/day visual flight rules (VFR/DVFR) flight plan, no flight plan, and other/unknown flight plan, in addition to hours flown under Instrument Flight Rules (IFR). Therefore, comparisons between this year's data and last year's data cannot be readily made for the tables in Chapter IV.

It also should be noted that the total hours flown by day/night and under IFR flight plan in IMC and VMC in Chapter IV's tables differ from the total hours flown in other tables in this report. This discrepancy exists because the total hours flown that are listed in Chapter IV's tables are based on the answers provided by respondents in Questions 10 and 11 of the 1991 GAAA Survey form, and not all of the respondents who answered Question 6 of the Survey form necessarily answered Questions 10 and 11. The same is true of Table 4.9 and Figures 4.1 and 4.2.

Tables 4.1, 4.2, and 4.3 contain the number of active general aviation aircraft and total hours flown by aircraft type during the day and night, by aircraft type under Visual Meteorological Conditions (VMC), and by aircraft type under IFR flight plan in Instrument Meteorological Conditions (IMC), respectively. Table 4.4 presents total day and night hours by region of based aircraft, while Tables 4.5 and 4.6 look at active aircraft and total hours flown by region under VMC and under IFR flight plan in IMC, respectively. The next two tables in this chapter provide breakdowns by SDR Manufacturer/Model (M/M) Group; Table 4.7 gives the number of active general aviation aircraft and total hours flown during the day and night by SDR M/M Group, and Table 4.8 looks at the number of active general aviation aircraft and total hours flown under IMC (based on IFR flight plan hours) and VMC (based on total hours flown) by SDR M/M Group. Table 4.9 is new to the Survey this year and presents total hours flown by flight plan for each aircraft type.

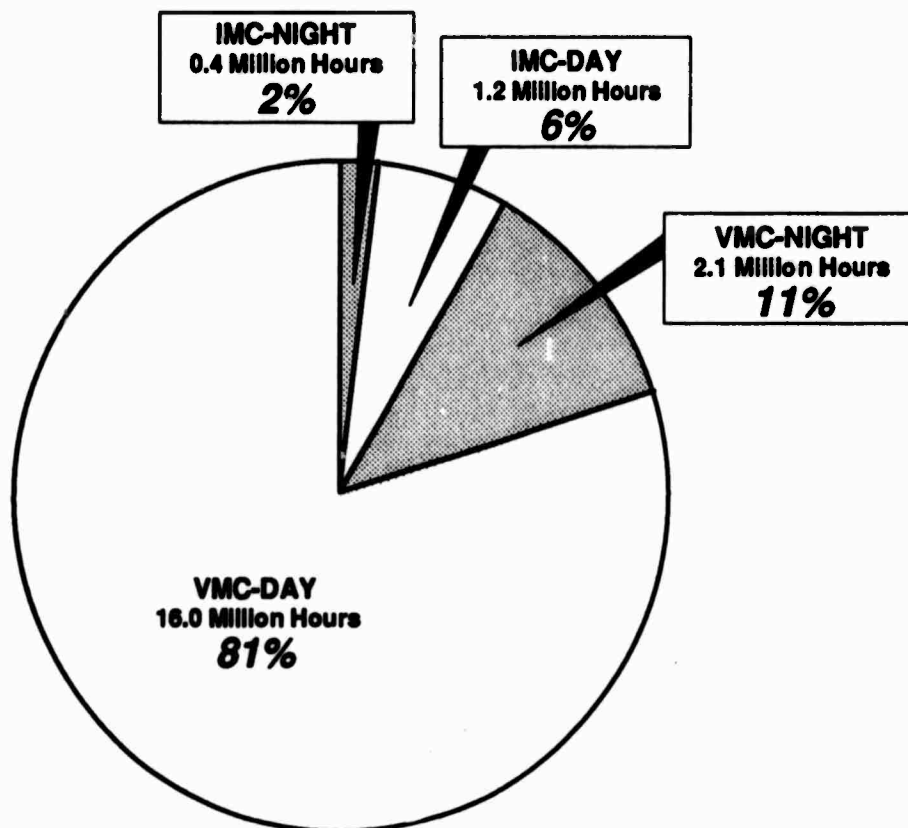
Figure 4.1, 1991 General Aviation Total Hours Flown by Weather and Light Conditions, graphically depicts the findings of the above listed tables, proportionally showing the number of hours flown under VMC and under IFR flight plan in IMC conditions by day and by night. Figure 4.2, 1991 General Aviation Total Hours Flown by Flight Plan, is new to the GAAA Survey this year and shows the number of hours flown by IFR flight plan, VFR/DVFR flight plan, no flight plan, or other/unknown flight plan.



Some highlights of this chapter include:

- o Approximately 87 percent of general aviation flying took place during the day.
- o Overall, 88 percent of VMC flying took place during the day.

- o IMC flying under IFR flight plan took place 73 percent of the time during the day.
- o Overall, these tables indicate that in 1991 about 81 percent of the general aviation fleet's total hours were flown in VMC conditions during the day. The remainder of the total hours flown by the general aviation fleet were divided as follows: 11 percent VMC night, 6 percent under IFR flight plan in IMC day, and 2 percent under IFR flight plan in IMC night.
- o The results of the 1991 GAAA Survey show that 45 percent of the hours flown by the general aviation fleet were flown with no flight plan, and an additional 7 percent of the hours flown were under some other/unknown flight plan. Only 25 percent of the hours were flown VFR/DVFR, and 23 percent were flown IFR.

**Figure 4.1**  
**1991 GENERAL AVIATION HOURS FLOWN**  
**BY WEATHER AND LIGHT CONDITIONS**

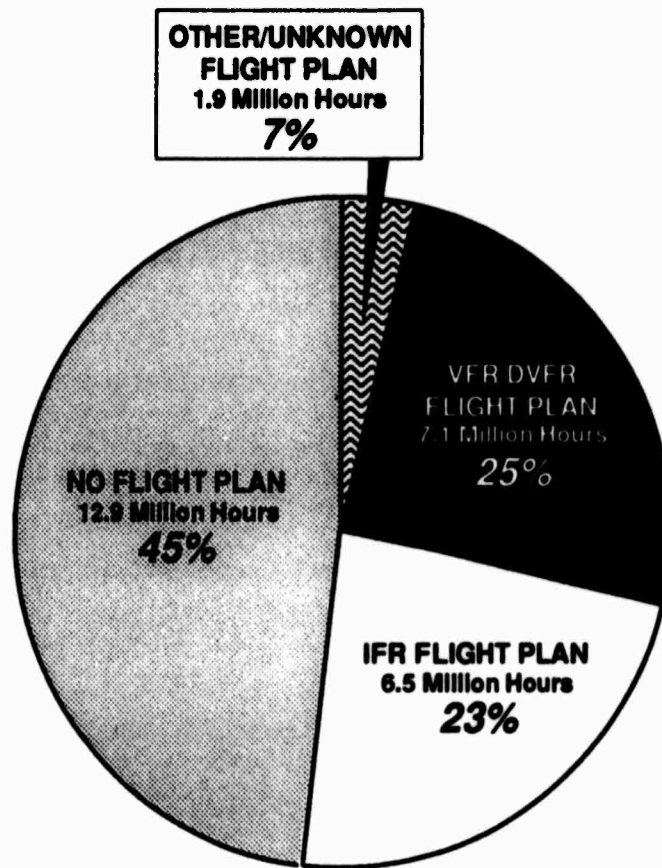


KEY	
	= Day
	= Night
IMC = Instrument Meteorological Conditions	
VMC = Visual Meteorological Conditions	

**NOTE:** These estimates are based on 19.8 million hours since data was not provided by all survey respondents.  
Also, IMC hours listed represent IMC hours flown under an IFR flight plan.

**SOURCE:** Tables 4.2 and 4.3

**Figure 4.2**  
**1991 GENERAL AVIATION TOTAL HOURS FLOWN**  
**BY FLIGHT PLAN**



**NOTE:** These estimates are based on 28.4 million hours since data was not provided by all survey respondents.

**SOURCE:** Table 4.9

# 4.1 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY DAY/NIGHT BY AIRCRAFT TYPE

AIRCRAFT TYPE	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING								
FIXED WING - PISTON								
1 ENG: 1-3 SEATS	44,623	0.9	5,000,032	3.8	16,738	3.5	446,381	16.0
1 ENG: 4+ SEATS	87,781	0.5	7,206,793	3.0	56,753	1.5	1,006,579	5.1
1 ENGINE: TOTAL	132,404	0.4	12,206,819	2.4	73,491	1.4	1,452,960	6.1
2 ENG: 1-6 SEATS	12,306	1.7	860,535	4.9	9,375	3.0	187,609	7.2
2 ENG: 7+ SEATS	7,371	0.0	640,589	5.6	6,083	1.9	174,267	11.4
2 ENGINE: TOTAL	19,677	0.9	1,501,124	3.7	15,458	2.0	361,875	6.6
PISTON: OTHER	117	0.4	3,289	23.0	26	19.5	232	62.7
PISTON: TOTAL	152,198	0.4	13,711,230	2.1	88,975	1.2	1,815,066	5.0
FIXED WING - TURBOPROP								
2 ENG: 1-12 SEATS	3,399	1.8	491,822	5.2	3,145	2.4	155,504	7.0
2 ENG: 13+ SEATS	335	10.2	138,707	15.6	296	11.4	59,570	21.4
2 ENGINE: TOTAL	3,734	1.9	630,529	5.3	3,441	2.4	215,074	7.8
TURBOPROP: OTHER	402	0.1	96,610	14.5	345	9.3	53,475	17.9
TURBOPROP: TOTAL	4,136	1.7	727,139	5.0	3,786	2.3	268,549	7.2

4.1 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY AIRCRAFT TYPE

AIRCRAFT TYPE	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET								
2 ENGINE: TOTAL	3,501	1.5	688,452	4.2	3,275	1.9	187,053	6.3
TURBOJET: OTHER	236	9.2	38,125	13.0	191	11.5	18,599	16.3
TURBOJET: TOTAL	3,737	1.5	726,577	4.1	3,466	1.9	205,652	6.0
FIXED WING: TOTAL	160,071	0.4	15,164,949	2.0	96,227	1.1	2,289,267	4.1
ROTORCRAFT								
PISTON	1,881	6.1	433,246	11.3	1,031	13.1	68,658	31.6
TURBINE	3,331	1.9	1,228,993	13.7	1,988	7.9	220,469	22.8
ROTORCRAFT: TOTAL	5,212	2.5	1,662,239	10.5	3,019	6.9	289,127	19.0
OTHER AIRCRAFT	6,092	0.0	366,903	9.8	136	35.9	3,330	85.4
TOTAL	171,374	0.4	17,194,092	2.0	99,382	1.1	2,581,724	4.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.2 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 1 OF 2

VMC TOTAL

VMC NIGHT

VMC DAY

AIRCRAFT TYPE	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
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FIXED WING

FIXED WING - PISTON

1 ENG: 1-3 SEATS	44,269	0.9	4,985,272	3.9	16,654	3.5	443,461	16.1	44,478	0.9	5,428,744	4.1
1 ENG: 4+ SEATS	83,851	0.6	6,747,711	3.2	53,372	1.6	904,402	5.4	84,226	0.6	7,651,567	3.2
1 ENGINE: TOTAL	128,120	0.5	11,732,973	2.4	70,025	1.5	1,347,864	6.4	128,704	0.5	13,080,314	2.5
2 ENG: 1-6 SEATS	11,513	2.0	699,716	5.5	8,268	3.6	128,099	7.5	11,606	2.0	826,996	5.4
2 ENG: 7+ SEATS	6,910	0.0	500,428	6.9	5,260	3.0	110,926	14.6	6,930	0.0	609,905	6.6
2 ENGINE: TOTAL	18,423	1.2	1,200,144	4.3	13,528	2.5	239,025	7.9	18,536	1.2	1,436,901	4.2
PISTON: OTHER	117	0.4	3,228	23.6	26	19.5	209	70.7	117	0.4	3,491	26.9
PISTON: TOTAL	146,659	0.5	12,936,343	2.3	83,579	1.3	1,587,097	5.6	147,356	0.5	14,520,703	2.3

FIXED WING - TURBOPROP

2 ENG: 1-12 SEATS	3,263	2.2	347,179	5.8	2,759	3.5	89,567	9.0	3,263	2.2	436,592	5.8
2 ENG: 13+ SEATS	321	10.7	93,149	16.4	265	12.5	22,674	24.1	321	10.7	115,637	16.2
2 ENGINE: TOTAL	3,584	2.2	440,328	5.7	3,024	3.3	112,240	8.7	3,584	2.2	552,229	5.7
TURBOPROP: OTHER	402	0.1	93,436	14.8	343	9.5	47,765	19.1	487	0.1	141,143	11.0
TURBOPROP: TOTAL	3,986	1.9	533,764	5.4	3,367	3.2	160,006	8.3	4,071	1.8	693,372	5.1



4.2 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	VMC DAY				VMC NIGHT				VMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET												
2 ENGINE: TOTAL	3,155	2.7	473,816	5.6	2,800	3.3	87,121	7.1	3,175	2.6	560,766	5.3
TURBOJET: OTHER	218	10.2	25,269	14.4	156	14.0	9,908	20.1	218	10.2	35,293	14.2
TURBOJET: TOTAL	3,373	2.6	499,085	5.4	2,955	3.3	97,029	6.7	3,393	2.5	596,059	5.1
FIXED WING: TOTAL	154,018	0.5	13,969,194	2.1	89,902	1.2	1,844,131	4.9	154,821	0.4	15,810,137	2.1
ROTORCRAFT												
PISTON	1,878	6.1	433,031	11.3	1,031	13.1	68,658	31.6	1,886	6.1	501,502	11.1
TURBINE	3,243	2.1	1,226,337	13.7	1,944	8.1	219,805	22.9	3,247	2.1	1,444,955	12.7
ROTORCRAFT: TOTAL	5,122	2.6	1,659,368	10.6	2,975	7.0	288,463	19.0	5,134	2.6	1,946,457	9.8
OTHER AIRCRAFT	6,091	0.0	366,741	9.8	135	36.1	3,324	85.5	6,109	0.0	370,226	10.4
TOTAL	165,231	0.4	15,995,300	2.2	93,013	1.2	2,135,918	4.9	166,064	0.4	18,126,812	2.2

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.3 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IFR FLIGHT PLAN IN IMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	IMC DAY				IMC NIGHT				IMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS	1,335	8.6	14,591	21.1	515	21.2	2,934	30.9	1,335	8.6	17,511	19.7
1 ENG: 4+ SEATS	24,205	1.2	464,243	5.5	12,316	3.5	102,512	10.0	24,298	1.2	566,574	5.7
1 ENGINE: TOTAL	25,541	1.2	478,833	5.4	12,832	3.5	105,446	9.8	25,634	1.2	584,085	5.6
2 ENG: 1-6 SEATS	6,111	2.5	163,569	8.2	4,592	4.4	59,895	12.8	6,142	2.5	223,312	8.3
2 ENG: 7+ SEATS	3,868	0.0	138,599	8.0	3,256	2.9	63,168	15.0	3,916	0.0	201,559	8.8
2 ENGINE: TOTAL	9,978	1.4	302,168	5.8	7,847	2.9	123,063	9.9	10,058	1.3	424,871	6.1
PISTON: OTHER	22	2.2	61	0.8	13	3.6	23	2.2	22	2.2	84	0.6
PISTON: TOTAL	35,541	0.9	781,062	4.0	20,692	2.4	228,531	7.0	35,713	0.9	1,009,039	4.1
FIXED WING - TURBOPROP												
2 ENG: 1-12 SEATS	2,391	2.3	145,238	10.5	2,270	2.9	66,093	8.8	2,391	2.3	211,452	9.5
2 ENG: 13+ SEATS	258	12.2	46,737	18.7	250	12.5	37,184	21.9	264	11.9	83,601	18.7
2 ENGINE: TOTAL	2,649	2.4	191,975	9.1	2,519	2.9	103,277	9.7	2,655	2.4	295,054	8.6
TURBOPROP: OTHER	63	32.1	3,176	47.7	140	0.4	5,707	16.2	148	0.3	8,882	24.0
TURBOPROP: TOTAL	2,711	2.4	195,151	9.0	2,659	2.7	108,984	9.3	2,803	2.2	303,936	8.4

4.3 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IFR FLIGHT PLAN IN IMC CONDITIONS  
BY DAY/NIGHT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	IMC DAY				IMC NIGHT				IMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET												
2 ENGINE: TOTAL	2,828	1.8	215,562	7.1	2,761	2.2	99,959	9.3	2,837	1.7	315,595	7.0
TURBOJET: OTHER	184	11.5	13,046	17.0	173	12.2	8,755	18.5	187	11.3	21,945	16.1
TURBOJET: TOTAL	3,012	1.8	228,608	6.7	2,934	2.2	108,714	8.7	3,024	1.7	337,540	6.6
FIXED WING: TOTAL	41,264	0.8	1,204,822	3.2	26,286	1.9	446,229	4.7	41,541	0.8	1,650,515	3.3
ROTORCRAFT												
PISTON	2	60.2	215	53.2	0	0.0	0	0.0	2	60.2	215	53.2
TURBINE	203	10.9	2,670	26.7	94	15.9	666	29.4	205	10.8	3,336	24.9
ROTORCRAFT: TOTAL	205	10.8	2,885	25.0	94	15.9	666	29.4	207	10.7	3,551	23.6
OTHER AIRCRAFT	13	88.8	110	78.4	1	99.5	6	99.1	13	88.8	116	76.0
TOTAL	41,482	0.8	1,207,817	3.2	26,380	1.9	446,901	4.7	41,760	0.8	1,654,182	3.3

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.4 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

REGION	DAY TOTAL				NIGHT TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ALASKAN	5,137	7.1	708,815	14.0	2,065	11.2	36,614	21.9
CENTRAL	9,790	5.5	772,569	9.4	5,380	7.4	142,941	21.0
EASTERN	19,503	3.8	1,820,834	7.2	11,989	4.8	304,878	12.2
GREAT LAKES	30,968	2.9	2,572,873	5.7	17,677	3.9	393,412	7.9
NEW ENGLAND	7,399	6.5	698,645	11.6	4,704	8.1	111,706	17.0
NORTHWEST MT.	16,553	4.1	1,820,121	8.1	8,968	5.7	194,278	15.6
SOUTHERN	28,495	3.0	2,961,726	6.6	17,282	3.9	510,322	10.2
SOUTHWESTERN	23,554	3.4	2,978,971	10.6	13,361	4.6	359,539	16.6
WESTERN-PACIFIC	30,937	2.8	3,032,689	5.8	18,921	3.7	527,990	17.0
TOTAL	172,336	1.2	17,367,232	2.9	100,346	1.7	2,581,683	5.3

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.5 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER VMC CONDITIONS  
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	VMC DAY				VMC NIGHT				VMC TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ALASKAN	5,086	7.2	702,827	14.1	2,030	11.4	31,191	19.5	5,124	7.1	733,993	14.1
CENTRAL	9,541	5.6	712,614	9.9	5,145	7.6	122,096	22.2	9,620	5.6	834,721	10.1
EASTERN	18,932	3.8	1,646,164	7.8	11,197	5.1	250,330	14.3	18,999	3.8	1,899,848	8.1
GREAT LAKES	29,877	3.0	2,317,207	6.2	16,569	4.1	302,523	8.9	29,971	3.0	2,621,616	6.1
NEW ENGLAND	7,078	6.7	650,342	12.2	4,366	8.5	98,751	18.7	7,106	6.6	751,193	12.5
NORTHWEST MT.	15,837	4.2	1,731,736	8.4	8,411	6.0	146,642	13.8	15,931	4.2	1,878,391	8.4
SOUTHERN	27,489	3.1	2,723,037	7.1	16,157	4.1	424,549	11.8	27,646	3.1	3,143,404	7.2
SOUTHWESTERN	22,804	3.4	2,821,131	11.1	12,403	4.8	308,443	19.0	22,907	3.4	3,128,003	10.8
WESTERN-PACIFIC	29,549	2.9	2,890,043	6.0	17,614	3.9	480,941	18.6	29,732	2.9	3,371,003	6.3
TOTAL	166,194	1.3	16,195,087	3.1	93,892	1.7	2,165,467	6.1	167,036	1.3	18,362,176	3.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.6 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IFR FLIGHT PLAN IN IMC CONDITIONS  
BY DAY/NIGHT BY REGION OF BASED AIRCRAFT

PAGE 1 OF 1

REGION	IMC DAY			IMC NIGHT			IMC TOTAL		
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN
ALASKAN	230	30.0	5,987	136	37.7	5,423	230	30.0	11,411
CENTRAL	2,236	10.2	59,955	1,462	12.4	20,845	2,296	10.0	80,800
EASTERN	5,135	6.3	174,671	3,253	7.9	54,548	5,179	6.3	229,219
GREAT LAKES	7,977	5.0	255,663	5,233	6.2	90,888	7,982	5.0	346,552
NEW ENGLAND	1,717	11.6	48,303	1,110	14.4	12,955	1,717	11.6	61,259
NORTHWEST MT.	3,544	7.6	88,386	1,867	10.6	47,637	3,547	7.6	136,022
SOUTHERN	8,148	4.9	238,691	5,400	6.2	85,773	8,226	4.9	324,463
SOUTHWESTERN	5,539	6.1	157,839	3,457	7.7	51,096	5,570	6.1	208,762
WESTERN-PACIFIC	7,303	5.1	142,646	4,758	6.5	47,049	7,363	5.1	189,695
TOTAL	41,830	2.2	1,172,141	26,675	2.8	416,215	42,112	2.2	1,588,184

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

PAGE 1 OF 18

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
OTHER 1	7,270	0.0	414,979	12.5	987	21.9	6,863	30.6
OTHER 2	1,133	0.0	112,146	20.0	627	15.0	12,224	26.1
OTHER 3	156	3.6	11,748	16.5	101	13.0	1,734	27.4
OTHER 4	76	0.7	8,335	25.7	53	17.4	1,840	56.7
OTHER 5	46	1.1	791	98.7	9	119.9	133	144.5
OTHER 6	354	0.1	67,759	32.7	277	11.8	23,664	34.0
OTHER 7	119	0.4	39,470	37.5	90	16.9	5,396	29.1
OTHER 8	199	0.3	16,492	86.1	170	22.3	2,209	117.5
OTHER 9	403	0.1	81,146	20.7	387	6.8	25,202	27.6
OTHER 10	112	0.4	9,391	21.5	68	18.4	4,428	31.9
OTHER 11	342	2.9	22,653	29.0	95	30.3	17,806	93.2
OTHER 12	90	0.6	43,782	31.2	46	27.1	3,046	104.9
OTHER 13	2,354	0.0	153,766	22.6	70	64.9	2,258	123.9
ADAMS A50S	85	0.6	1,580	27.5	6	120.8	11	121.5
AERORSJ2	3	14.5	76	26.9	1	92.3	5	90.0
AEROSPAS355	57	0.9	27,649	21.1	43	19.2	2,521	58.1
AEROSPAS316	50	1.0	34,431	59.5	24	73.8	314	73.3
AEROSPAS365	31	1.6	6,211	15.2	28	8.7	2,492	24.9
AGUSTA109	61	0.8	6,632	27.2	39	24.9	1,413	56.8
AIRPTSA	82	0.6	9,256	25.4	2	103.0	4	106.7
AIRSPC18	9	5.2	599	27.7	4	55.6	45	77.6
AIRTRCAT300	241	0.2	80,144	14.7	3	211.1	72	245.9

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

PAGE 2 OF 18

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
AIRTRCAT400	101	0.5	47,044	10.9	63	35.3	1,625	41.0
AIRTRCAT500	84	0.6	28,435	18.0	35	59.0	544	139.8
AMD FALC10	98	0.5	20,703	11.8	93	4.6	5,130	20.2
AMD FALC20	135	0.4	19,281	30.0	117	12.2	3,364	30.1
AMD FALC50	72	0.7	12,294	10.6	72	0.7	7,070	14.7
AMGENAG5B	58	0.9	13,206	16.3	27	19.8	892	44.9
AMTR TMK	18	2.6	418	33.5	0	0.0	0	0.0
ARCTICS1A	13	3.6	917	25.3	1	102.9	24	103.9
ARCTICS1B1	12	4.0	379	64.7	1	103.6	5	105.0
ARONCA15	81	0.6	6,955	18.9	31	25.8	394	66.9
ARONCA58	60	0.8	1,786	27.2	0	0.0	0	0.0
ARONCA65	44	1.1	1,661	25.6	0	0.0	0	0.0
ARONCAC3	8	5.6	77	25.3	0	0.0	0	0.0
AROSTREX8	86	0.6	4,147	14.0	0	0.0	0	0.0
AVIANWFALCON	24	2.1	335	30.9	0	0.0	0	0.0
AVIANWSKYHWK	40	1.2	844	29.0	2	214.2	8	241.6
AYRES S2	333	0.1	101,764	14.7	28	86.5	1,953	94.1
AYRES S2	79	0.6	34,473	16.9	27	42.6	3,093	67.9
BAG	9	5.4	5,096	3.1	9	5.4	3,397	3.1
BAG E206	3	13.2	187	6.1	1	37.8	68	0.7
BALWKSFIREFY	947	0.1	31,238	20.6	0	0.0	0	0.0
BBAVIA11	282	10.3	11,892	26.1	41	72.6	175	75.1



4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BBAVIA7	1,695	0.0	116,757	18.6	193	39.8	1,106	50.9
BBAVIA6	134	0.4	9,690	19.3	41	31.3	537	44.8
BEECH 100	161	0.3	22,565	8.8	143	6.5	5,114	22.5
BEECH 17	86	0.6	3,518	20.4	11	130.1	62	133.5
BEECH 18	13	3.6	795	44.3	10	32.9	78	59.5
BEECH 18	313	0.2	32,839	31.6	237	18.5	7,119	44.0
BEECH 18	17	2.9	112	0.4	13	3.8	108	0.5
BEECH 1900	32	1.5	13,409	33.8	32	1.5	11,431	21.6
BEECH 200	705	0.1	123,175	10.7	651	5.0	38,426	14.9
BEECH 23	2,196	0.0	154,334	18.5	1,553	10.9	23,155	27.2
BEECH 300	77	0.6	11,022	13.6	66	6.9	2,660	24.2
BEECH 33	1,925	0.0	166,128	25.9	1,315	10.0	27,274	28.4
BEECH 35	5,609	0.0	343,857	9.4	3,191	9.3	47,460	18.0
BEECH 36	2,227	0.0	180,635	13.4	1,522	9.3	22,890	17.8
BEECH 45	177	0.3	9,573	25.1	70	40.7	548	56.6
BEECH 50	190	0.3	10,826	24.6	130	21.2	1,662	34.5
BEECH 55	1,757	0.8	113,118	14.5	1,318	9.1	25,017	23.0
BEECH 56	43	1.1	1,266	22.0	33	19.7	191	46.6
BEECH 58	1,266	0.0	124,507	19.4	1,060	6.5	31,384	30.2
BEECH 60	316	0.2	20,566	27.0	312	4.5	6,659	50.4
BEECH 65	60	0.8	3,658	47.5	35	17.6	564	36.7
BEECH 76	153	0.3	18,233	17.3	141	6.6	6,378	28.3

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

PAGE 4 OF 18

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BEECH 77	164	0.3	39,081	16.9	131	10.0	3,942	18.0
BEECH 80	90	0.6	3,940	59.2	34	74.8	287	79.4
BEECH 90	805	0.1	95,462	11.6	793	2.0	28,177	17.9
BEECH 95	381	0.1	17,129	29.3	212	24.6	3,214	66.6
BEECH 99	16	3.1	3,078	25.2	12	18.9	977	37.3
BELL 204	5	9.4	154	0.3	0	0.0	0	0.0
BELL 205	23	2.2	5,378	24.3	23	2.2	1,969	44.1
BELL 206	1,537	0.0	934,200	16.8	862	16.1	123,140	31.8
BELL 212	68	0.7	29,580	12.9	39	26.4	1,065	35.8
BELL 214	8	6.1	10,212	31.0	2	20.6	12	4.0
BELL 222	59	0.8	8,712	41.8	37	28.6	2,737	42.4
BELL 412	90	0.6	13,808	34.0	61	26.9	4,948	50.6
BELL 47	316	0.2	64,685	17.1	125	34.6	4,381	85.4
BLANCA11	37	1.3	1,908	30.4	7	78.7	49	77.4
BLANCA1413	83	0.6	4,145	17.1	36	33.5	425	84.4
BLANCA1419	160	0.3	6,432	16.5	63	32.6	448	39.1
BLANCA17	761	0.1	43,415	17.6	457	19.9	6,078	35.9
BLANCA7	1,334	0.0	77,097	17.0	305	32.0	2,616	46.6
BLANCA7	14	3.5	1,126	43.9	0	0.0	0	0.0
BLANCA8	315	0.2	19,582	17.3	169	24.7	598	45.8
BNORM BN2	39	1.3	5,291	35.8	17	66.3	298	87.9
BOEING727	17	2.9	1,331	30.8	17	2.9	303	33.1

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BOEING75	456	0.1	58,887	31.9	24	86.2	102	86.3
BOLCOMS105	110	0.5	57,987	15.9	50	58.4	9,790	62.6
BOLCOMS117	101	0.5	29,642	15.0	87	14.4	13,071	18.4
BRAERODH125	182	0.3	46,072	13.8	179	2.3	9,258	15.5
BRASOVIS28	22	2.2	1,542	38.1	0	0.0	0	0.0
BRWSTRFLEET2	4	10.1	100	26.9	0	0.0	0	0.0
BRWSTRFLEET7	11	4.4	861	26.1	0	0.0	0	0.0
BURER 131	6	7.2	555	47.6	0	0.0	0	0.0
CAMRONMODELO	56	0.9	1,477	19.1	0	0.0	0	0.0
CAMRONMODELO	139	0.4	2,044	35.0	9	147.5	11	158.1
CASA C212	9	5.2	2,396	35.2	9	5.2	854	44.7
CESSNA120	615	0.1	28,743	9.1	371	18.1	1,319	31.3
CESSNA140	997	0.1	35,251	10.1	396	22.7	1,822	34.6
CESSNA150	11,268	0.7	1,850,220	8.8	7,712	5.5	321,975	22.2
CESSNA170	1,595	0.0	94,957	11.5	733	15.5	4,909	25.3
CESSNA172	18,162	0.0	2,186,402	8.2	12,610	4.3	346,654	13.8
CESSNA175	663	0.1	29,830	11.9	344	20.7	1,967	30.3
CESSNA177	2,218	0.0	141,889	18.2	1,363	13.4	19,528	34.9
CESSNA180	1,734	0.0	112,283	12.8	859	17.2	7,789	27.2
CESSNA182	10,353	0.0	812,241	8.3	6,483	5.8	86,859	12.7
CESSNA185	1,089	0.0	102,029	20.8	570	20.1	6,045	32.2
CESSNA188	770	0.1	207,491	17.1	242	33.1	3,494	61.3

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

PAGE 6 OF 18

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA190	55	0.9	2,092	18.5	21	33.8	102	38.2
CESSNA195	127	0.4	6,296	21.5	68	24.7	769	38.4
CESSNA205	181	0.3	10,708	28.1	103	22.9	789	33.3
CESSNA206	2,209	0.0	314,776	17.7	1,251	13.2	34,915	53.8
CESSNA207	284	0.2	171,112	19.1	238	16.1	11,764	32.4
CESSNA208	34	66.1	4,082	78.8	109	15.4	40,167	27.1
CESSNA210	4,791	0.0	332,438	13.0	3,257	7.9	50,750	18.7
CESSNA303	101	0.5	7,649	32.0	90	11.2	2,526	26.7
CESSNA305	149	0.3	13,994	19.9	32	40.2	282	48.0
CESSNA310	2,115	0.0	150,289	20.1	1,627	9.8	31,625	25.0
CESSNA320	233	0.2	13,058	25.0	193	9.3	2,263	22.8
CESSNA335	29	1.7	3,783	19.8	26	9.9	766	28.1
CESSNA336	33	1.5	1,526	29.1	19	28.2	312	34.3
CESSNA337	758	0.1	41,272	23.1	587	15.3	5,939	29.9
CESSNA340	702	0.1	46,382	23.9	648	7.3	15,947	24.0
CESSNA401	222	0.2	12,267	49.9	197	14.0	3,257	82.1
CESSNA402	361	0.1	86,991	26.3	301	13.8	22,503	46.8
CESSNA404	62	0.8	10,112	30.4	62	0.8	5,830	72.3
CESSNA411	53	0.9	2,217	26.7	42	18.2	454	47.9
CESSNA414	819	0.1	56,905	16.7	790	3.9	14,272	20.6
CESSNA421	1,206	0.0	74,068	20.4	934	11.8	16,816	28.8
CESSNA425	154	0.3	16,470	24.0	148	5.1	3,416	29.4

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

PAGE 7 OF 18

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA441	192	0.3	23,705	19.7	190	2.6	10,791	36.4
CESSNA500	571	0.1	94,582	11.9	518	5.5	22,405	15.2
CESSNA501	241	0.2	25,328	13.0	231	5.5	5,833	21.5
CESSNA650	142	0.4	40,131	12.5	135	3.2	7,708	18.2
CESSNA750	23	2.1	585	24.0	3	112.9	26	120.8
CHILD S1	46	1.1	3,890	15.2	0	0.0	0	0.0
CHILD S2	123	0.4	3,391	23.5	1	259.8	0	0.0
CHRIS HUSKY	68	0.7	4,732	27.6	43	25.5	155	30.8
CNDALRCL600	132	0.4	30,210	12.0	130	2.0	9,098	23.5
CNTRAR101	18	2.7	1,451	30.7	0	0.0	0	0.0
COMWTH185	25	2.0	707	17.4	5	70.8	12	69.0
CONAERLA4	296	0.2	14,845	22.4	132	23.6	521	39.7
CURTISJR	2	16.7	14	21.3	0	0.0	0	0.0
CURTISROBIN	1	25.0	33	1.5	0	0.0	0	0.0
CURTISTRVAIR	26	1.9	5,015	39.6	3	95.4	20	99.5
CVAC 440	17	2.8	195	33.1	11	29.1	44	86.9
CVAC BT13	26	1.9	1,384	19.5	7	49.8	6	50.2
CVAC STC580	23	2.2	3,257	33.6	23	2.2	1,968	41.4
DHAV DHC1	49	1.0	2,068	40.5	3	113.9	10	115.7
DHAV DHC2	106	0.5	15,456	24.9	43	47.6	857	47.0
DHAV DHC3	30	1.7	10,157	10.0	0	0.0	0	0.0
DHAV DHC4	32	1.5	1,574	0.0	32	1.5	393	0.1

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
DH1V DHC6	28	1.8	9,374	27.2	27	9.5	4,602	38.9
DH1V700DH82	46	1.1	2,154	20.3	0	0.0	0	0.0
DOUG A26	26	1.9	5,003	32.5	19	2.6	4,807	34.3
DOUG DC3	120	33.1	9,585	43.4	146	14.7	10,636	120.3
DOUG DC4	39	1.3	893	42.2	4	55.8	9	52.9
DOUG DC6	10	5.0	109	0.5	5	9.5	39	1.3
DOUG DC9	21	2.3	2,386	79.7	21	2.3	1,404	43.4
EAGLE DW	54	0.9	12,093	11.1	4	117.7	145	119.9
EAGLEBC7	28	1.8	956	15.3	0	0.0	0	0.0
EIRVON20	74	0.7	3,898	20.7	0	0.0	0	0.0
EMB 110	18	2.7	211	98.0	10	29.0	31	191.0
ENSTRMF28	147	0.3	24,501	23.5	80	20.0	14,113	25.0
ENSTRMF28	84	0.6	11,965	29.1	44	19.7	4,411	53.0
FLEET 16B	4	12.0	164	32.9	0	0.0	0	0.0
FRCHLD22	3	13.5	62	27.8	0	0.0	0	0.0
FRCHLD24	1	29.8	42	1.2	0	0.0	0	0.0
FRCHLD24	78	0.6	2,998	19.9	3	126.8	16	142.1
FRCHLDM62	93	0.5	3,626	18.7	23	48.3	64	76.0
GALAXYGX7	47	1.1	1,068	26.1	2	141.0	13	148.8
GENBALAX6	11	4.4	266	15.4	0	0.0	0	0.0
GLASER300	13	3.7	818	26.3	0	0.0	0	0.0
GLASER400	11	4.3	601	22.4	0	0.0	0	0.0

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GLASFLEH301	69	0.7	3,165	19.7	0	0.0	0	0.0
GLASFLLIBELL	30	1.6	1,145	18.5	0	0.0	0	0.0
GROB 103CAT	62	0.8	15,364	16.1	0	0.0	0	0.0
GROB 103TWN	19	2.5	5,159	36.1	0	0.0	0	0.0
GROB 109	48	1.0	3,374	18.4	15	33.6	70	41.9
GROB ASTIR	39	1.3	1,489	29.8	0	0.0	0	0.0
GRTLS2T1	83	0.6	3,862	24.9	3	131.5	0	0.0
GRUMANSAL6	22	2.2	557	24.7	20	14.9	83	58.2
GRUMAVAA1	405	0.1	25,955	15.5	275	12.8	4,422	31.2
GRUMAVAA5	870	0.1	55,315	14.6	587	14.7	9,425	26.3
GRUMAVG1159	31	1.6	5,074	10.6	30	5.4	1,419	19.9
GRUMAVG164	761	0.1	274,130	7.9	24	113.2	275	119.3
GRUMAVG21	31	1.6	1,707	18.1	3	83.7	22	81.0
GRUMAVTBM	19	2.5	675	33.0	1	106.0	14	108.2
GULSTM112	559	0.1	31,325	24.2	275	27.2	3,874	41.3
GULSTM500	253	0.2	13,132	44.4	149	25.6	1,644	47.6
GULSTM520	12	3.9	678	40.3	12	3.9	50	26.9
GULSTM560	44	1.1	2,212	25.0	31	34.3	205	39.9
GULSTM680	205	0.2	5,284	30.0	150	18.6	948	35.9
GULSTM680TP	22	2.2	1,081	18.5	13	26.3	209	5.6
GULSTM690TC	27	1.8	2,059	17.8	19	21.0	706	24.6
GULSTM690TP	318	0.2	33,132	19.2	286	9.2	9,085	25.6





4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ISRAEL1123	17	2.9	1,413	24.4	17	2.9	525	25.8
ISRAEL1124	151	3.4	28,149	13.1	154	2.6	6,958	22.1
JEMSTRDGA15	28	1.8	2,099	61.9	16	41.3	110	68.2
LEAR 23	48	1.0	2,457	32.6	20	56.7	246	44.3
LEAR 24	125	0.4	7,447	54.5	117	10.9	2,905	45.1
LEAR 25	161	0.3	25,799	14.0	138	11.1	11,283	25.1
LEAR 35	310	2.0	79,551	11.6	309	2.0	21,705	26.5
LEAR 55	83	0.6	18,246	14.2	78	6.8	4,533	35.6
LET L13	116	0.4	12,530	20.7	0	0.0	0	0.0
LKHEED1329	43	1.1	3,765	25.2	42	2.7	1,113	22.9
LKHEED18	28	1.8	733	26.4	0	0.0	0	0.0
LKHEEDP2V	2	19.3	195	0.3	0	0.0	0	0.0
LKHEEDPV1	4	10.7	111	58.5	0	0.0	0	0.0
LKHEEDT33	7	6.9	44	14.5	1	140.6	1	138.9
LUSCOM8	903	0.1	47,625	15.4	158	39.5	1,072	49.5
MACDOUG369	55	0.9	22,647	15.5	55	0.9	18,926	29.1
MARTIN404	2	19.5	11	4.2	0	0.0	0	0.0
MAULE M4	134	0.4	5,049	36.0	46	45.4	593	64.8
MAULE M5	249	0.2	16,443	18.8	175	19.3	1,182	42.6
MAULE M6	63	0.8	5,418	34.9	49	22.3	465	36.5
MAULE MX7	18	7.3	1,055	13.9	15	14.7	175	45.0
MCLISHFUNKB	55	0.9	1,349	16.2	13	53.6	56	94.5

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
MEYERSOTW	15	3.2	214	28.8	0	0.0	0	0.0
MILITARY204	112	0.4	13,739	21.8	20	120.8	301	128.6
MILITARY47	111	0.4	11,274	48.5	58	48.9	3,946	167.4
MNCOUP90	15	3.3	316	23.5	0	0.0	0	0.0
MNMITEM18	52	0.9	2,369	20.9	0	0.0	0	0.0
MODFD47	35	1.4	13,241	23.8	26	26.3	576	53.3
MOONEYM20	6,017	0.0	419,374	13.5	4,419	6.3	65,923	16.1
MOONEYM22	18	2.7	623	21.4	16	15.4	136	46.2
MRCHTIS205	24	2.1	1,096	27.0	7	71.3	41	69.7
MTSBSIMU2	150	0.3	15,281	22.6	147	4.0	8,675	24.2
MTSBSIMU300	65	0.8	9,198	14.8	63	5.1	2,303	16.3
MULTECD16	24	2.0	1,182	40.1	4	82.5	34	80.4
NAMER B25	17	2.9	561	25.9	8	35.6	35	47.4
NAMER F51	86	0.6	3,077	21.5	20	49.1	113	55.2
NAMER NA260	72	0.7	2,217	15.7	13	53.1	50	54.1
NAMER T6	361	0.1	16,905	14.6	109	43.3	262	62.0
NATBAL752	19	2.6	458	26.7	2	125.1	5	129.9
NAVAL N3N	25	1.9	1,035	20.6	2	133.3	5	136.5
NAVIONNAVION	354	1.4	20,282	23.5	190	27.1	3,128	43.9
NORD 3202	13	3.8	312	21.7	0	0.0	0	0.0
NORD SV4	13	3.8	306	28.9	0	0.0	0	0.0
NORWST65	14	3.5	994	35.0	0	0.0	0	0.0

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ORLHELH19	10	4.9	524	54.4	3	82.6	4	82.0
OTHEXMILITUB	21	2.3	5,777	24.5	13	19.4	5,381	29.1
PARTENP68	41	1.2	4,192	25.3	29	21.0	732	34.3
PICARDAX6	12	4.1	264	52.5	0	0.0	0	0.0
PILATSB4	16	3.1	580	22.6	0	0.0	0	0.0
PIPER 600	289	0.2	23,258	16.4	245	12.3	5,398	23.0
PIPER J2	7	7.1	50	22.4	0	0.0	0	0.0
PIPER J3	1,913	0.4	91,293	13.3	71	63.2	375	93.1
PIPER J4	75	0.7	2,639	33.1	1	176.7	9	208.8
PIPER J5	135	0.4	8,387	31.3	11	72.1	103	83.9
PIPER PA12	570	0.1	37,823	15.3	206	23.3	800	30.7
PIPER PA14	53	0.9	4,703	14.8	23	23.8	135	30.7
PIPER PA15	37	1.3	1,627	22.0	0	0.0	0	0.0
PIPER PA16	133	0.4	7,451	16.7	30	47.7	335	51.9
PIPER PA17	39	1.3	1,562	50.2	4	101.8	44	103.6
PIPER PA18	1,765	0.0	153,431	17.8	500	28.7	4,330	38.6
PIPER PA20	238	0.2	11,285	23.8	58	43.2	506	48.5
PIPER PA22	509	0.1	20,693	14.2	190	31.6	1,323	55.3
PIPER PA22	1,775	2.0	82,103	13.7	788	16.9	5,943	31.5
PIPER PA23	2,495	0.0	179,296	16.5	1,789	11.0	34,938	30.3
PIPER PA24	2,306	1.8	128,915	13.2	1,265	14.0	17,442	28.7
PIPER PA25	701	0.1	85,298	29.3	0	0.0	0	0.0

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
PIPER PA28	4,200	0.0	297,250	14.8	2,800	8.1	36,463	17.9
PIPER PA28	12,368	0.2	1,121,145	8.8	8,876	4.5	184,305	13.0
PIPER PA30	991	1.4	60,453	15.5	705	10.9	13,371	27.3
PIPER PA31	464	2.2	31,538	41.5	270	31.1	4,916	64.5
PIPER PA31	1,089	0.0	108,020	27.3	939	10.4	20,552	32.4
PIPER PA31T	380	0.1	42,662	17.7	362	3.7	10,244	21.2
PIPER PA32	3,485	0.0	256,487	12.5	2,724	6.1	46,367	19.8
PIPER PA34	1,805	0.0	126,263	18.2	1,584	7.4	44,907	31.2
PIPER PA36	180	0.3	41,866	17.2	30	74.9	242	79.9
PIPER PA38	772	0.1	149,550	19.5	514	16.6	9,117	34.1
PIPER PA42	78	0.6	8,053	13.7	74	5.6	2,085	20.9
PIPER PA44	201	0.2	33,696	32.6	169	13.2	3,435	31.4
PIPER PA46	249	0.2	22,315	17.2	174	17.0	3,219	29.4
PROPT200	39	1.3	1,621	19.9	13	48.8	50	48.3
RAVEN RX6	34	1.4	516	23.5	0	0.0	0	0.0
RAVEN S50	15	3.2	396	42.7	0	0.0	0	0.0
RAVEN S55	165	0.3	3,753	34.0	4	170.7	63	177.9
RAVEN S57	51	19.8	2,022	28.1	21	50.7	677	61.4
RAVEN S60	182	0.3	3,528	21.9	0	0.0	0	0.0
RAVEN S66	30	1.6	1,704	24.4	0	0.0	0	0.0
RKWELL500	29	1.7	2,377	28.2	22	14.0	399	27.3
RKWELL700	20	2.5	1,106	33.2	16	11.4	349	42.8

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ROWEILLMA265	199	0.3	31,243	11.7	186	4.5	10,212	26.2
ROBSINR22	414	0.1	131,519	16.4	342	13.2	7,383	26.1
ROLSCHLS	79	0.6	4,946	42.0	0	0.0	0	0.0
RYAN ST3	63	0.8	2,031	20.7	0	0.0	0	0.0
SAAB SF340	15	3.3	3,299	33.5	15	3.3	991	36.7
SCHEMPDISCUS	42	6.7	3,111	24.3	1	142.5	0	0.0
SCHLERASK21	21	4.3	4,440	33.4	0	0.0	0	0.0
SCHLERASW15	27	1.8	1,216	14.4	0	0.0	0	0.0
SCHLERASW19	42	1.2	2,527	23.4	1	139.8	32	154.5
SCHLERASW20	79	0.6	7,236	12.0	2	136.2	71	153.8
SCHLERK8	10	4.9	298	49.7	0	0.0	0	0.0
SCHLERKA6	30	1.7	1,485	20.7	0	0.0	0	0.0
SCWZERG164	129	0.4	42,053	14.5	17	86.4	2,313	91.6
SCWZERSG1	309	0.2	17,310	19.6	0	0.0	0	0.0
SCWZERSG2	326	0.2	52,798	15.0	0	0.0	0	0.0
SEMCO T	9	5.1	9	5.1	0	0.0	0	0.0
SKRSKYS58	24	2.0	2,181	46.8	18	34.5	108	47.9
SKRSKYS58T	19	2.6	5,596	0.0	19	2.6	295	0.2
SKRSKYS76	97	0.5	20,369	32.9	78	19.0	4,971	35.8
SLINDS100	223	0.2	11,917	15.2	107	22.5	746	39.1
SMITH 600	268	0.2	14,073	23.0	228	11.3	2,973	43.1
SHAIS350	78	0.6	19,967	18.8	59	27.6	2,474	102.4

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
SNIAS 350	109	0.5	24,191	26.4	86	24.0	1,687	58.8
SNIAS SA341	8	5.8	1,082	38.4	6	35.9	105	52.1
SOCATMS894	30	1.7	1,559	18.2	14	34.4	155	38.6
SOCATAPALLYE	14	3.5	1,095	19.9	4	59.8	14	74.4
SOCATATE10	28	1.7	3,372	24.3	22	16.6	553	28.6
SOCATATE20	98	0.5	8,230	16.1	70	12.9	936	35.2
SPERTHCIRRUS	76	0.7	4,726	17.5	0	0.0	0	0.0
SPERTENIMBUS	38	1.3	1,860	14.3	0	0.0	0	0.0
SPERTHVENTUS	34	1.4	3,616	27.4	0	0.0	0	0.0
STBROSSD3	0	0.0	0	0.0	0	0.0	0	0.0
STNSON10	12	3.9	316	29.1	2	94.9	14	93.8
STNSONJR	4	10.3	62	29.7	0	0.0	0	0.0
STNSONL5	49	1.0	1,397	26.0	12	40.5	39	63.0
STNSONSR9	3	12.8	44	1.1	0	0.0	0	0.0
STNSONV77	23	2.1	420	21.2	6	51.3	27	56.2
STOLAMEC3	55	0.9	2,835	25.0	7	138.3	10	141.0
SUPAC LA	4	11.9	239	4.8	2	60.2	3	58.3
SWRNGNSA226	67	0.7	6,664	21.7	61	10.9	1,943	25.8
SWRNGNSA226	2	19.6	354	0.1	1	32.8	36	1.4
SWRNGNSA227	48	1.0	15,941	29.3	45	4.6	5,553	34.7
SWRNGNSA26	57	0.9	3,682	23.4	53	7.6	1,269	26.5
TCRAFKD	92	8.1	3,633	26.1	14	50.4	639	89.3

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

PAGE 17 OF

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
TCRAFTA	3	15.3	21	33.4	0	0.0	0	0.0
TCRAFTBC	859	0.1	33,240	14.5	52	81.6	40	81.7
TCRAFTBF	12	4.1	638	33.2	3	57.0	355	50.3
TCRAFTBL	59	0.8	1,672	21.1	1	171.7	5	192.6
TEMCO 11A	11	4.4	692	25.4	5	37.3	13	48.4
TH55	18	2.8	1,260	15.7	10	25.5	188	48.0
THUNDRAX7	73	0.7	1,796	24.1	0	0.0	0	0.0
IMPSONNAVION	223	0.2	10,007	18.5	134	22.3	700	33.7
TOMCAT	17	2.8	3,641	16.0	4	68.1	107	64.6
TRYTEK65	108	0.5	4,317	22.8	0	0.0	0	0.0
TRYTEK	3	15.6	59	0.8	0	0.0	0	0.0
UNIVACGC1	351	0.1	10,456	19.0	111	30.2	728	40.9
UNIVAR106	627	1.0	31,204	18.1	270	22.9	1,528	37.3
UNIVAR415	1,109	0.0	34,619	14.8	204	39.7	650	64.7
VALENT17	16	2.9	511	16.8	0	0.0	0	0.0
VARGA 2150	103	0.5	4,666	15.0	72	23.3	187	64.6
WACO ASO	5	9.1	74	54.3	0	0.0	0	0.0
WACO GXE	2	17.9	16	22.0	0	0.0	0	0.0
WACO R	11	4.2	190	34.8	0	0.0	0	0.0
WACO UPF7	50	1.0	3,352	28.5	0	0.0	0	0.0
WACO YK	9	5.4	170	48.0	1	114.5	7	119.2
WSK MI.8	19	2.6	7,771	14.0	0	0.0	0	0.0

4.7 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN  
BY DAY/NIGHT BY SDR MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	DAY				NIGHT			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
WTHRLY201	50	9.1	10,090	21.5	4	119.1	1,850	125.1
TOTAL	173,443	0.1	17,450,026	1.9	100,946	1.0	2,603,934	4.2

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.  
FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.



4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 10

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
OTHER 1	29	55.7	171	62.9	7,269	0.0	421,548	12.4
OTHER 2	220	10.6	4,307	23.7	1,095	2.0	119,786	19.3
OTHER 3	28	9.6	883	27.6	155	1.9	12,592	17.0
OTHER 4	30	1.6	1,157	39.4	76	0.7	9,039	27.7
OTHER 5	7	7.1	10	17.4	46	1.1	914	104.3
OTHER 6	243	2.5	32,993	49.5	347	2.5	58,232	35.2
OTHER 7	76	0.7	12,781	35.7	115	4.3	32,082	38.5
OTHER 8	45	10.3	3,165	58.5	199	0.3	15,536	86.2
OTHER 9	331	1.9	49,805	28.4	302	15.5	56,543	30.4
OTHER 10	72	8.6	5,007	31.3	110	3.1	8,804	23.7
OTHER 11	0	0.0	0	0.0	350	0.1	40,719	40.6
OTHER 12	3	15.5	33	1.5	87	0.6	46,795	30.5
OTHER 13	11	99.2	86	99.1	2,354	0.0	155,948	24.0
ADAMS A50S	0	0.0	0	0.0	85	0.6	1,591	27.5
AERORSJ2	0	0.0	0	0.0	3	14.5	81	30.6
AEROSPAS355	1	80.6	34	70.5	56	2.0	30,076	20.4
AEROSPSA316	0	0.0	0	0.0	50	1.0	34,744	59.6
AEROSPSA365	13	3.8	539	33.2	27	10.1	8,163	13.8
AGUSTA109	32	1.5	654	44.0	53	10.5	7,391	31.7
AIRPTSA	0	0.0	0	0.0	82	0.6	9,260	25.4
AIRSPC18	0	0.0	0	0.0	9	5.2	644	30.9
AIRTRCAT300	0	0.0	0	0.0	241	0.2	80,216	14.7

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 2 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
AIRTRCAT400	0	0.0	0	0.0	101	0.5	48,670	11.3
AIRTRCAT500	0	0.0	0	0.0	84	0.6	29,019	17.0
AMD FALC10	82	0.6	9,823	20.0	88	7.8	16,008	21.7
AMD FALC20	105	0.5	10,999	36.3	123	8.0	11,623	31.9
AMD FALC50	67	0.7	7,674	19.8	68	7.2	11,690	13.1
AMRGENAG5B	10	4.6	311	32.4	57	2.4	13,760	16.1
AMTR TMK	0	0.0	0	0.0	18	2.6	418	33.5
ARCTICS1A	0	0.0	0	0.0	13	3.6	944	26.8
ARCTICS1B1	0	0.0	0	0.0	12	4.0	384	65.2
ARONCA15	0	0.0	0	0.0	81	0.6	7,348	19.8
ARONCA58	0	0.0	0	0.0	60	0.8	1,786	27.2
ARONCA65	0	0.0	0	0.0	44	1.1	1,661	25.6
ARONCAC3	0	0.0	0	0.0	8	5.6	77	25.3
AROSTRX8	0	0.0	0	0.0	86	0.6	4,147	14.0
AVIANWFALCON	0	0.0	0	0.0	24	2.1	335	30.9
AVIANWSKYHMK	0	0.0	0	0.0	40	1.2	852	29.7
AYRES S2	1	175.0	19	197.6	332	1.0	103,659	14.1
AYRES S2	0	0.0	0	0.0	79	0.6	37,566	15.2
BAG	8	5.8	3,397	3.1	9	5.4	5,096	3.1
BAG B206	1	37.8	59	0.8	3	13.2	195	5.8
BALWKSFIREFY	0	0.0	0	0.0	947	0.1	31,238	20.6
BBAVIA11	0	0.0	0	0.0	320	0.2	12,036	26.3

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 3 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BBAVIA7	0	0.0	0	0.0	1,695	0.0	117,933	18.5
BBAVIA8	0	0.0	0	0.0	134	0.4	10,226	18.8
BEECH 100	100	0.5	10,932	22.0	161	0.3	16,747	18.3
BEECH 17	3	16.1	22	38.0	86	0.6	3,559	21.4
BEECH 18	0	0.0	0	0.0	13	3.6	873	45.2
BEECH 18	123	0.4	14,400	44.7	278	7.8	25,558	36.9
BEECH 18	13	3.8	215	0.2	4	10.6	4	10.6
BEECH 1900	30	1.7	11,659	20.4	32	1.5	13,181	33.5
BEECH 200	525	0.1	44,386	12.6	705	0.1	117,215	13.1
BEECH 23	611	5.5	8,189	23.6	2,055	2.6	169,607	18.4
BEECH 300	52	0.9	3,233	15.2	77	0.6	10,447	16.3
BEECH 33	726	2.3	19,284	23.3	1,881	1.5	174,327	26.1
BEECH 35	1,760	2.7	41,150	14.1	5,354	1.5	349,565	9.5
BEECH 36	1,080	2.2	25,321	15.5	2,125	2.1	177,939	13.6
BEECH 45	38	1.3	659	30.0	164	6.4	9,493	24.8
BEECH 50	68	9.1	2,707	35.6	159	9.1	9,745	24.7
BEECH 55	1,021	3.0	34,151	17.9	1,682	2.6	103,984	15.3
BEECH 56	25	1.9	645	20.1	34	14.3	812	26.3
BEECH 58	690	0.1	37,909	16.8	1,227	2.0	118,141	23.9
BEECH 60	217	0.2	10,836	55.8	275	10.0	16,388	35.0
BEECH 65	30	1.6	1,280	33.9	55	11.8	2,942	46.9
BEECH 76	103	0.5	10,491	29.1	135	6.5	14,135	19.1

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS) AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 4 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BEECH 77	5	49.9	3	74.0	164	0.3	42,972	16.8
BEECH 80	40	15.1	536	62.4	90	0.6	3,678	60.5
BEECH 90	583	0.1	39,099	16.1	787	2.6	84,540	15.6
BEECH 95	191	0.3	3,179	49.7	373	3.2	17,164	31.8
BEECH 99	9	5.2	1,304	28.2	16	3.1	2,751	28.3
BELL 204	0	0.0	0	0.0	5	9.4	154	0.3
BELL 205	0	0.0	0	0.0	23	2.2	7,346	16.7
BELL 206	53	30.9	486	36.0	1,513	1.3	1,056,138	15.5
BELL 212	0	0.0	0	0.0	68	0.7	30,645	12.6
BELL 214	2	20.6	12	4.0	8	6.1	10,212	31.0
BELL 222	15	3.3	458	22.9	55	4.3	10,992	43.0
BELL 412	30	1.7	765	44.6	78	7.8	17,991	38.9
BELL 47	0	0.0	0	0.0	316	0.2	69,198	16.0
BLANCA11	0	0.0	0	0.0	37	1.3	1,962	31.3
BLANCA1413	10	4.9	20	3.9	83	0.6	4,550	16.1
BLANCA1419	8	18.7	106	34.1	159	0.9	6,785	17.4
BLANCA17	255	11.0	4,066	29.5	760	0.9	45,428	16.9
BLANCA7	0	0.0	0	0.0	1,334	0.0	79,602	17.6
BLANCA7	0	0.0	0	0.0	14	3.5	1,126	43.9
BLANCA8	0	0.0	0	0.0	315	0.2	20,180	17.1
BNORM BN2	3	16.2	6	7.5	39	1.3	5,583	34.9
BOEING727	12	4.0	233	42.2	17	2.9	1,401	32.3

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 5 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
BOEING75	0	0.0	0	0.0	456	0.1	58,935	31.8
BOLKMS105	0	0.0	0	0.0	110	0.5	67,777	17.3
BOLKMS117	6	88.5	60	87.7	95	6.0	42,589	14.9
BRAERODH125	152	0.3	18,485	24.5	161	8.3	36,844	16.9
BRASOVIS28	0	0.0	0	0.0	22	2.2	1,542	38.1
BRWSTRFLEET2	0	0.0	0	0.0	4	10.1	100	26.9
BRWSTRFLEET7	0	0.0	0	0.0	11	4.4	861	26.1
BUKER 131	0	0.0	0	0.0	6	7.2	555	47.6
CAMRONMODELO	0	0.0	0	0.0	56	0.9	1,477	19.1
CAMRONMODELO	0	0.0	0	0.0	139	0.4	2,055	35.2
CASA C212	8	6.2	1,060	35.1	9	5.2	2,190	35.6
CESSNA120	0	0.0	0	0.0	615	0.1	30,062	9.5
CESSNA140	4	125.5	60	128.2	997	0.1	37,137	10.2
CESSNA150	351	14.6	6,753	37.0	11,340	0.3	2,164,888	9.0
CESSNA170	42	30.6	301	41.6	1,588	0.5	99,410	11.7
CESSNA172	4,000	2.5	124,324	16.3	17,457	0.8	2,406,865	8.3
CESSNA175	23	31.0	31	40.1	663	0.1	31,591	11.9
CESSNA177	572	0.1	11,738	27.6	2,064	2.6	150,330	18.0
CESSNA180	290	7.4	4,742	24.8	1,616	2.5	115,330	12.6
CESSNA182	3,108	2.5	64,323	10.2	9,894	1.0	832,922	8.6
CESSNA185	139	8.4	1,494	38.1	1,085	0.7	106,580	20.9
CESSNA188	0	0.0	0	0.0	770	0.1	210,985	16.6

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 6 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA190	1	133.1	8	147.4	55	0.9	2,185	17.8
CESSNA195	14	3.4	453	34.3	126	1.8	6,646	21.7
CESSNA205	41	11.9	342	44.3	178	2.6	11,155	27.4
CESSNA206	550	4.2	26,840	55.7	2,098	2.0	322,850	17.5
CESSNA207	7	6.9	381	45.8	279	0.7	182,495	18.7
CESSNA208	102	0.5	4,555	27.4	119	5.5	39,695	27.0
CESSNA210	1,902	2.8	36,159	14.1	4,582	1.6	346,950	12.8
CESSNA303	71	0.7	3,234	26.4	97	6.1	6,941	36.7
CESSNA305	3	32.0	7	85.0	146	1.0	14,250	19.9
CESSNA310	1,116	0.0	33,658	22.2	2,021	2.7	148,255	20.1
CESSNA320	82	2.5	973	28.2	212	3.9	14,356	23.3
CESSNA335	20	2.4	1,311	21.0	29	1.7	3,238	24.0
CESSNA336	10	5.0	133	84.2	30	8.0	1,696	23.0
CESSNA337	330	5.6	13,973	40.9	637	7.5	32,915	18.5
CESSNA340	499	0.1	21,233	26.8	671	4.2	41,125	27.0
CESSNA401	101	10.4	3,231	68.4	209	6.8	12,247	53.6
CESSNA402	181	0.3	14,786	48.0	352	3.6	92,598	26.4
CESSNA404	39	1.3	9,199	74.0	56	12.7	6,743	39.3
CESSNA411	28	1.7	473	32.6	53	0.9	2,193	27.0
CESSNA414	520	0.1	21,184	17.7	777	3.5	50,038	19.3
CESSNA421	645	0.1	29,120	19.4	1,091	5.1	61,821	27.1
CESSNA425	94	0.5	5,570	26.7	153	2.3	14,315	25.5

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 7 C

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
CESSNA441	139	0.4	12,765	24.2	150	11.0	21,731	31.3
CESSNA500	435	0.1	39,290	17.6	538	4.5	77,694	14.6
CESSNA501	191	0.3	11,110	15.6	214	7.1	20,050	19.0
CESSNA650	127	0.4	14,615	22.6	127	8.6	33,223	14.7
CESSNA750	0	0.0	0	0.0	23	2.1	611	22.2
CHILD S1	0	0.0	0	0.0	46	1.1	3,890	15.2
CHILD S2	0	0.0	0	0.0	123	0.4	3,391	23.5
CHRIS HUSKY	11	4.2	40	98.4	65	5.5	4,847	26.5
CNDALRCL600	125	0.4	12,793	20.5	132	0.4	26,513	14.0
CNTRAR101	0	0.0	0	0.0	18	2.7	1,451	30.7
COMETH185	0	0.0	0	0.0	25	2.0	720	16.3
CONAERLA4	40	1.2	334	29.4	293	1.6	15,039	22.7
CURTISJR	0	0.0	0	0.0	2	16.7	14	21.3
CURTISROBIN	0	0.0	0	0.0	1	25.0	33	1.5
CURTISTRVAIR	0	0.0	0	0.0	26	1.9	5,040	39.3
CVAC 440	9	5.5	133	14.6	17	2.8	107	73.4
CVAC BT13	0	0.0	0	0.0	26	1.9	1,389	19.5
CVAC STC580	19	2.5	2,002	37.8	23	2.2	3,223	36.0
DHAV DEC1	0	0.0	0	0.0	49	1.0	2,078	40.3
DHAV DEC2	43	1.1	129	0.4	63	0.8	16,184	24.8
DHAV DEC3	0	0.0	0	0.0	30	1.7	10,157	10.0
DHAV DEC4	16	3.0	787	0.1	32	1.5	1,180	0.0

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 8 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
DHAV DHC6	21	2.4	8,967	46.1	19	24.4	5,009	11.8
DHAVXDH82	0	0.0	0	0.0	46	1.1	2,154	20.3
DOUG A26	19	2.6	4,858	33.6	26	1.9	4,952	33.2
DOUG DC3	43	1.2	3,467	60.4	126	8.4	16,754	67.9
DOUG DC4	2	108.3	1	106.3	39	1.3	901	42.4
DOUG DC6	5	9.5	40	1.2	10	5.0	108	0.5
DOUG DC9	21	2.3	1,393	37.7	21	2.3	2,396	75.9
EAGLE DW	0	0.0	0	0.0	54	0.9	12,242	11.6
EAGLEBC7	0	0.0	0	0.0	28	1.8	956	15.3
EIRVON20	0	0.0	0	0.0	74	0.7	3,898	20.7
EMB 110	9	5.3	151	94.2	17	17.7	91	142.3
ENSTRMF28	17	2.9	6,003	0.0	144	0.3	32,611	30.2
ENSTRMF28	0	0.0	0	0.0	84	0.6	16,377	30.2
FLEET 16B	0	0.0	0	0.0	4	12.0	164	32.9
FRCHLD22	0	0.0	0	0.0	3	13.5	62	27.8
FRCHLD24	0	0.0	0	0.0	1	29.8	42	1.2
FRCHLD24	0	0.0	0	0.0	78	0.6	3,014	20.0
FRCHLDM62	0	0.0	0	0.0	93	0.5	3,693	18.3
GALAXYGX7	0	0.0	0	0.0	47	1.1	1,080	25.9
GENBALAX6	0	0.0	0	0.0	11	4.4	266	15.4
GLASER300	0	0.0	0	0.0	13	3.7	818	26.3
GLASER400	0	0.0	0	0.0	11	4.3	601	22.4



4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS) AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 9 0

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GLASFLH301	0	0.0	0	0.0	69	0.7	3,165	19.7
GLASFLLIBELL	0	0.0	0	0.0	30	1.6	1,145	18.5
GROB 103CAT	0	0.0	0	0.0	62	0.8	15,364	16.1
GROB 103TWN	0	0.0	0	0.0	19	2.5	5,159	36.1
GROB 109	0	0.0	0	0.0	48	1.0	3,446	18.4
GROB ASTIR	0	0.0	0	0.0	39	1.3	1,489	29.8
GRTLKS2T1	0	0.0	0	0.0	83	0.6	3,862	24.9
GROMANSAL6	15	3.2	96	75.5	22	2.2	544	10.1
GROMAVAAL	40	13.6	1,097	64.2	394	2.1	29,245	15.7
GROMAVAA5	257	8.4	4,354	34.5	830	3.1	60,386	13.6
GROMAVG1159	25	2.0	3,917	22.8	25	15.5	2,580	30.2
GROMAVG164	0	0.0	0	0.0	761	0.1	274,405	7.9
GROMAVG21	9	5.4	76	25.4	27	9.4	1,652	18.2
GROMAVTBM	3	15.0	3	15.0	16	3.0	688	32.6
GULSTM112	263	0.2	7,604	39.8	516	5.5	27,595	20.6
GULSTM500	160	3.8	2,765	71.1	248	4.1	12,011	42.6
GULSTM520	0	0.0	0	0.0	12	3.9	728	39.4
GULSTM560	10	4.9	163	46.8	44	1.1	2,183	22.3
GULSTM680	96	0.5	1,168	38.7	193	5.3	5,064	32.2
GULSTM680TP	9	5.0	360	3.8	22	2.2	931	21.3
GULSTM690TC	16	3.0	975	19.4	25	8.2	1,790	25.3
GULSTM690TP	216	0.2	13,311	26.4	312	3.3	28,906	23.1

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS) AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 10 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
GULSTMAA1	39	1.3	909	36.8	371	1.1	29,491	18.2
GULSTMAA5	113	10.0	1,281	32.2	520	2.4	30,712	14.3
GULSTMG1159	189	0.3	23,870	24.3	194	9.7	28,963	27.0
GULSTMG159	26	1.9	2,101	15.8	30	1.7	4,693	28.7
GULSTMG44	12	3.8	196	19.8	57	2.6	3,938	33.0
GULSTMG73	7	6.7	128	68.8	13	20.2	1,274	53.0
GULSTMG7	22	2.2	281	49.6	40	1.2	1,793	25.0
H23/HTE	0	0.0	0	0.0	2	22.3	223	0.2
H34/55	0	0.0	0	0.0	2	24.6	178	0.3
HELIO H295	15	3.1	131	29.1	20	26.6	1,274	35.9
HELIO H391	0	0.0	0	0.0	9	5.3	407	16.6
HILLERFH1100	0	0.0	0	0.0	5	9.8	180	23.4
HILLERUH12	0	0.0	0	0.0	270	0.2	77,635	27.7
HILLERUH12	0	0.0	0	0.0	12	3.9	4,965	12.2
HSPAVNHA200	1	275.3	1	261.4	34	1.4	874	12.5
HUGHES269	0	0.0	0	0.0	159	0.3	44,721	28.5
HUGHES369	0	0.0	0	0.0	431	0.1	258,741	21.8
HWKSLYDH104	0	0.0	0	0.0	31	1.6	249	29.4
HWKSLYDH125	121	0.4	7,700	32.9	133	5.8	18,841	18.9
HYNES B2	0	0.0	0	0.0	36	1.4	1,492	47.2
INTR_P200	9	15.2	193	38.1	24	8.0	1,908	25.0
ISRAEL1121	62	0.8	2,496	37.0	61	15.8	3,328	39.6

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 11 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ISRAEL1123	17	2.9	595	39.6	17	2.9	1,344	20.6
ISRAEL1124	126	2.5	13,336	20.5	135	8.5	21,767	20.6
JBMSTRDGA15	4	41.9	7	50.9	26	7.2	2,215	61.4
LEAR 23	15	31.5	687	47.1	43	10.9	2,015	44.6
LEAR 24	91	0.5	2,614	49.8	119	7.4	7,734	55.0
LEAR 25	117	0.4	15,478	34.7	144	9.6	21,601	23.1
LEAR 35	260	0.2	27,239	26.6	298	6.2	74,014	13.4
LEAR 55	70	0.7	4,566	33.3	82	3.5	17,941	14.9
LET L13	0	0.0	0	0.0	116	0.4	12,530	20.7
LKHEED1329	41	1.2	1,587	23.5	31	21.4	3,292	29.4
LKHEED18	6	8.3	22	2.2	28	1.8	711	27.2
LKHEEDP2V	0	0.0	0	0.0	2	19.3	195	0.3
LKHEEDPV1	0	0.0	0	0.0	4	10.7	111	58.5
LKHEEDT33	1	37.1	3	54.6	7	6.9	41	13.9
LUSCOMB	0	0.0	0	0.0	903	0.1	48,703	15.4
MACDOUG369	0	0.0	0	0.0	55	0.9	41,573	18.4
MARTIN404	1	32.6	0	0.0	2	19.5	11	4.2
MAULE M4	23	14.7	117	21.4	123	6.2	5,525	39.3
MAULE M5	24	17.3	138	75.0	248	1.2	17,487	17.8
MAULE M6	12	16.2	431	42.5	61	4.2	5,453	32.0
MAULE MX7	3	16.2	6	40.7	19	2.5	1,224	11.2
MCLISHFUNKB	0	0.0	0	0.0	55	0.9	1,405	15.1

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 12 OF 13

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
MEYERSOTW	0	0.0	0	0.0	15	3.2	214	28.8
MILITARY204	0	0.0	0	0.0	112	0.4	14,039	23.2
MILITARY47	0	0.0	0	0.0	111	0.4	15,219	52.3
MNCOUP90	0	0.0	0	0.0	15	3.3	316	23.5
MNMITM18	0	0.0	0	0.0	52	0.9	2,369	20.9
MODED47	0	0.0	0	0.0	35	1.4	13,817	22.8
MOONEYM20	2,326	1.9	53,027	11.9	5,590	1.8	432,503	14.1
MOONEYM22	9	5.3	92	35.4	17	8.8	667	28.2
MRCHTIS205	2	17.3	4	12.3	24	2.1	1,133	25.0
MTSBSIMJ2	97	0.5	9,968	16.7	146	3.2	13,988	27.4
MTSBSIMJ300	52	1.0	2,790	19.8	63	4.2	8,711	16.5
MULTICD16	0	0.0	0	0.0	24	2.0	1,216	41.1
NAMER B25	7	25.9	107	26.4	12	23.3	491	28.7
NAMER F51	8	36.0	18	54.0	81	3.9	3,173	21.4
NAMER NA260	5	9.3	59	52.1	70	2.8	2,208	14.7
NAMER T6	9	5.1	7	43.1	361	0.1	17,160	14.5
NATRAL752	0	0.0	0	0.0	19	2.6	463	27.2
NAVAL N3N	0	0.0	0	0.0	25	1.9	1,041	20.5
NAVIONNAVION	66	0.8	682	37.5	334	4.6	22,728	24.5
WORD 3202	0	0.0	0	0.0	13	3.8	312	21.7
WORD SV4	0	0.0	0	0.0	13	3.8	306	28.9
WORDST65	0	0.0	0	0.0	14	3.5	994	35.0

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 13 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
ORLHELH19	0	0.0	0	0.0	10	4.9	528	54.6
OTHEXMILITURB	0	0.0	0	0.0	21	2.3	11,158	21.8
PARTENP68	18	2.8	653	38.0	37	7.0	4,271	24.0
PICARDAY6	0	0.0	0	0.0	12	4.1	264	52.5
PILATSB4	0	0.0	0	0.0	16	3.1	580	22.6
PIPER 600	180	0.3	8,698	21.0	284	3.1	19,903	20.6
PIPER J2	0	0.0	0	0.0	7	7.1	50	22.4
PIPER J3	0	0.0	0	0.0	1,914	0.0	91,669	13.4
PIPER J4	0	0.0	1	124.1	74	1.4	2,644	33.3
PIPER J5	0	0.0	0	0.0	135	0.4	8,491	31.1
PIPER PA12	0	0.0	1	169.8	570	0.1	38,629	15.0
PIPER PA14	0	0.0	0	0.0	53	0.9	4,838	14.4
PIPER PA15	0	0.0	0	0.0	37	1.3	1,627	22.0
PIPER PA16	0	0.0	0	0.0	133	0.4	7,786	16.0
PIPER PA17	0	0.0	0	0.0	39	1.3	1,606	51.0
PIPER PA18	27	122.0	71	127.1	1,755	1.3	157,813	17.9
PIPER PA20	0	0.0	0	0.0	238	0.2	11,791	24.2
PIPER PA22	20	29.4	93	108.2	509	0.1	21,937	14.6
PIPER PA22	48	39.3	123	39.1	1,805	0.0	87,924	13.3
PIPER PA23	981	2.9	29,259	32.6	2,394	2.3	184,975	17.2
PIPER PA24	674	3.8	17,482	29.9	2,221	2.3	128,875	12.5
PIPER PA25	0	0.0	0	0.0	701	0.1	85,298	29.3

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 14 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
PIPER PA28	426	13.3	4,657	28.9	4,117	1.0	328,402	14.2
PIPER PA28	3,591	2.5	84,595	15.8	11,954	0.9	1,221,135	8.6
PIPER PA30	477	0.1	13,420	17.6	915	3.7	60,157	17.9
PIPER PA31	166	23.1	5,760	68.6	430	7.2	30,694	41.9
PIPER PA31	650	5.9	32,161	18.1	975	6.1	96,616	30.7
PIPER PA31T	261	0.2	21,573	27.8	348	5.7	31,332	22.0
PIPER PA32	1,592	1.3	39,257	12.9	3,331	1.8	263,519	13.1
PIPER PA34	968	0.1	38,825	22.6	1,742	2.7	132,345	20.7
PIPER PA36	0	0.0	0	0.0	180	0.3	42,120	17.2
PIPER PA38	120	15.1	1,098	51.4	723	3.6	157,574	19.7
PIPER PA42	44	1.1	2,454	20.5	77	3.7	7,683	16.4
PIPER PA44	102	0.5	2,871	19.7	189	5.5	34,266	33.2
PIPER PA46	157	2.2	5,958	28.4	243	3.1	19,576	19.8
PROPTJ200	6	7.7	48	45.4	39	1.3	1,623	19.0
RAVEN RX6	0	0.0	0	0.0	34	1.4	516	23.5
RAVEN S50	0	0.0	0	0.0	15	3.2	396	42.7
RAVEN S55	0	0.0	0	0.0	165	0.3	3,821	35.8
RAVEN S57	0	0.0	0	0.0	68	0.7	2,700	19.0
RAVEN S60	0	0.0	0	0.0	182	0.3	3,528	21.9
RAVEN S66	0	0.0	0	0.0	30	1.6	1,704	24.4
RKWE1500	14	3.5	816	27.2	26	8.3	1,960	31.3
RKWE1700	11	4.2	356	19.3	20	2.5	1,086	37.4

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 15 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
RKWLNA265	162	0.3	14,144	23.0	186	6.1	27,234	17.7
ROBSINR22	0	0.0	0	0.0	414	0.1	138,902	16.4
ROLSCHLS	0	0.0	0	0.0	79	0.6	4,946	42.0
RYAN ST3	0	0.0	0	0.0	63	0.8	2,031	20.7
SAAB SF340	11	4.3	3,535	47.2	12	26.2	755	87.0
SCHEMDDISCUS	0	0.0	0	0.0	43	1.1	3,222	23.7
SCHLERASK21	0	0.0	0	0.0	21	2.3	4,440	33.4
SCHLERASW15	0	0.0	0	0.0	27	1.8	1,216	14.4
SCHLERASW19	0	0.0	0	0.0	42	1.2	2,561	22.9
SCHLERASW20	1	102.2	28	104.0	78	1.4	7,237	12.4
SCHLERK8	0	0.0	0	0.0	10	4.9	298	49.7
SCHLERKA6	0	0.0	0	0.0	30	1.7	1,485	20.7
SCWZERG164	0	0.0	0	0.0	129	0.4	44,387	12.2
SCWZERSG1	0	0.0	0	0.0	309	0.2	17,310	19.6
SCWZERSG2	0	0.0	0	0.0	326	0.2	52,798	15.0
SEMO T	0	0.0	0	0.0	9	5.1	9	5.1
SKRSKYS58	0	0.0	0	0.0	24	2.0	2,289	43.5
SKRSKYS58T	0	0.0	0	0.0	19	2.6	5,890	0.0
SKRSKYS76	44	1.1	726	87.7	78	14.6	24,614	31.4
SLINDS100	5	9.5	471	42.8	220	1.0	12,191	13.9
SMITH 600	106	0.5	3,015	19.0	259	2.4	14,038	25.6
SNALS350	0	0.0	0	0.0	78	0.6	22,440	25.3

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS) AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 16 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
SNIAS 350	0	0.0	0	0.0	109	0.5	25,877	26.0
SNIAS SA341	0	0.0	0	0.0	8	5.8	1,187	39.4
SOCATAMS894	2	16.8	40	1.2	30	1.7	1,674	18.9
SOCATARALLYE	1	79.2	1	77.3	14	3.5	1,110	20.3
SOCATATB10	10	4.7	155	22.2	28	1.7	3,770	23.4
SOCATATB20	33	1.5	562	27.9	98	0.5	8,620	15.9
SPERTHCIRROS	0	0.0	0	0.0	76	0.7	4,726	17.5
SPERTENIMBUS	0	0.0	0	0.0	38	1.3	1,860	14.3
SPERTHEVENTUS	0	0.0	0	0.0	34	1.4	3,616	27.4
STBROSSD3	0	0.0	0	0.0	0	0.0	0	0.0
STNSON10	0	0.0	0	0.0	12	3.9	329	31.4
STNSONJR	0	0.0	0	0.0	4	10.3	62	29.7
STNSONL5	0	0.0	0	0.0	49	1.0	1,435	26.1
STNSONSR9	0	0.0	0	0.0	3	12.8	44	1.1
STNSONV77	0	0.0	0	0.0	23	2.1	447	21.4
STOLAMRC3	0	0.0	0	0.0	55	0.9	2,844	25.1
SUPAC LA	0	0.0	0	0.0	4	11.9	242	5.5
SWRNGNSA226	51	1.0	2,738	24.3	67	0.7	5,822	20.5
SWRNGNSA226	1	32.8	36	1.4	2	19.6	354	0.1
SWRNGNSA227	36	1.4	4,172	26.4	48	1.0	17,322	28.3
SWRNGNSA26	33	1.5	1,698	20.3	50	9.7	3,253	29.5
TCRAFTD	7	6.5	195	0.3	91	0.5	4,083	23.1



4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 17 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
TCRAFTA	0	0.0	0	0.0	3	15.3	21	33.4
TCRAFTBC	0	0.0	0	0.0	859	0.1	33,283	14.5
TCRAFTBF	0	0.0	0	0.0	12	4.1	896	23.1
TCRAFTBL	0	0.0	0	0.0	59	0.8	1,677	21.1
TEMCO 11A	1	83.0	1	79.8	11	4.4	704	25.0
TH55	0	0.0	0	0.0	18	2.8	1,448	16.8
THUNDRAX7	0	0.0	0	0.0	73	0.7	1,796	24.1
TMP SONNAVION	31	19.8	283	43.2	219	2.5	10,430	18.6
TOMCAT	0	0.0	0	0.0	17	2.8	3,765	15.5
TRYTEK65	0	0.0	0	0.0	108	0.5	4,317	22.8
TRYTEKK	0	0.0	0	0.0	3	15.6	59	0.8
UNIVACGC1	28	11.8	273	24.3	334	2.2	10,930	19.6
UNIVAR108	23	23.6	22	161.0	626	1.0	32,732	18.2
UNIVAR415	1	131.0	3	138.4	1,109	0.0	35,179	14.7
VALENT17	0	0.0	0	0.0	16	2.9	511	16.8
VARGA 2150	0	0.0	8	81.8	103	0.5	4,846	15.8
WACO ASO	0	0.0	0	0.0	5	9.1	74	54.3
WACO GXE	0	0.0	0	0.0	2	17.9	16	22.0
WACO R	0	0.0	0	0.0	11	4.2	190	34.8
WACO UPF7	0	0.0	0	0.0	50	1.0	3,352	28.5
WACO YK	0	0.0	0	0.0	9	5.4	179	50.8
WSK M18	0	0.0	0	0.0	19	2.6	7,771	14.0

4.8 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IMC CONDITIONS (BASED ON IFR FLIGHT PLAN HOURS)  
AND VMC CONDITIONS (BASED ON TOTAL HOURS FLOWN) BY SDR MANUFACTURER/MODEL GROUP

PAGE 18 OF

MANUFACTURER/ MODEL GROUP	IMC (BASED ON IFR FLIGHT PLAN HOURS)				VMC (BASED ON TOTAL HOURS FLOWN)			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
WHERLY201	0	0.0	0	0.0	53	0.9	11,940	21.0
TOTAL	42,433	0.5	1,601,814	3.2	168,100	0.2	18,443,602	2.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

4.9 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN  
BY AIRCRAFT TYPE

PAGE 1 OF 4

IFR FLIGHT PLAN

AIRCRAFT TYPE	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
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FIXED WING

FIXED WING - PISTON

1 ENG: 1-3 SEATS	2,642	12.2	85,363	24.5	19,393	4.0	1,409,534	10.5
1 ENG: 4+ SEATS	43,611	2.4	2,462,380	4.8	54,489	2.1	3,813,580	5.6
1 ENGINE: TOTAL	46,253	2.4	2,547,743	4.7	73,882	1.9	5,223,114	5.0
2 ENG: 1-6 SEATS	10,865	3.6	982,087	6.8	6,802	6.0	388,122	15.6
2 ENG: 7+ SEATS	6,214	2.5	682,106	7.7	3,769	6.8	383,580	15.8
2 ENGINE: TOTAL	17,079	2.5	1,664,193	5.1	10,571	4.6	771,703	11.1
PISTON: OTHER	67	28.4	2,723	31.8	61	26.2	2,958	53.9
PISTON: TOTAL	63,399	1.9	4,214,659	3.5	84,514	1.7	5,997,776	4.6

FIXED WING - TURBOPROP

2 ENG: 1-12 SEATS	3,651	3.1	836,520	5.7	1,346	10.3	76,544	28.5
2 ENG: 13+ SEATS	462	15.4	215,395	20.3	162	30.9	19,433	38.1
2 ENGINE: TOTAL	4,113	3.3	1,051,915	6.2	1,507	9.8	95,977	24.0
TURBOPROP: OTHER	186	23.1	51,412	23.1	108	44.4	12,184	55.6
TURBOPROP: TOTAL	4,300	3.3	1,103,327	6.0	1,615	9.7	108,161	22.2

4.9 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN  
BY AIRCRAFT TYPE

PAGE 2 OF 4

AIRCRAFT TYPE	IFR FLIGHT PLAN				VFR/DVFR FLIGHT PLAN			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING - TURBOJET								
2 ENGINE: TOTAL	3,924	2.4	1,087,651	5.1	883	13.9	18,028	23.9
TURBOJET: OTHER	252	15.9	48,792	16.9	58	41.4	1,586	52.4
TURBOJET: TOTAL	4,176	2.5	1,136,443	4.9	942	13.3	19,614	22.4
FIXED WING: TOTAL	71,874	1.7	6,454,427	2.6	87,071	1.7	6,125,551	4.5
ROTORCRAFT								
PISTON	101	59.4	7,762	63.5	717	18.4	77,939	30.7
TURBINE	321	24.3	14,198	51.9	1,959	8.9	862,967	23.7
ROTORCRAFT: TOTAL	422	23.5	21,960	40.4	2,677	8.1	940,907	21.9
OTHER AIRCRAFT	122	51.6	2,392	56.3	1,102	14.2	52,109	17.3
TOTAL	72,418	1.7	6,478,779	2.6	90,850	1.6	7,118,566	4.8

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

4.9 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN  
BY AIRCRAFT TYPE

PAGE 3 OF 4

AIRCRAFT TYPE	NO FLIGHT PLAN				OTHER/UNKNOWN FLIGHT PLAN				TOTAL			
	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
FIXED WING												
FIXED WING - PISTON												
1 ENG: 1-3 SEATS	45,489	2.1	4,194,609	4.4	3,617	11.3	516,673	18.1	53,015	1.7	6,212,416	4.4
1 ENG: 4+ SEATS	79,372	1.3	6,063,477	3.5	8,928	7.1	855,534	13.9	96,029	0.9	13,244,710	2.2
1 ENGINE: TOTAL	124,861	1.1	10,258,084	2.7	12,545	6.0	1,372,207	11.0	149,043	0.8	19,457,128	2.2
2 ENG: 1-6 SEATS	9,435	4.4	615,704	9.2	1,230	17.9	105,405	28.1	13,342	2.6	2,099,614	5.1
2 ENG: 7+ SEATS	4,046	6.1	187,167	15.8	727	21.9	42,737	25.8	7,292	2.0	1,298,887	6.1
2 ENGINE: TOTAL	13,481	3.6	802,871	8.0	1,957	13.8	148,142	21.3	20,634	1.8	3,398,501	4.4
PISTON: OTHER	65	35.4	729	61.9	20	85.0	215	98.5	127	22.0	6,673	33.1
PISTON: TOTAL	138,407	1.1	11,061,688	2.6	14,523	5.5	1,520,564	10.2	169,804	0.8	22,862,300	2.2
FIXED WING - TURBOPROP												
2 ENG: 1-12 SEATS	1,522	9.7	61,966	18.6	146	39.0	14,778	48.3	3,682	3.1	990,503	5.1
2 ENG: 13+ SEATS	113	38.9	10,279	88.4	20	70.0	1,880	89.8	485	15.1	247,128	18.1
2 ENGINE: TOTAL	1,635	9.5	72,245	20.3	166	35.5	16,658	44.0	4,167	3.2	1,237,632	5.1
TURBOPROP: OTHER	319	13.8	77,745	17.5	20	100.0	8,753	83.8	512	3.1	150,147	12.1
TURBOPROP: TOTAL	1,954	8.2	149,990	13.4	186	33.3	25,412	40.8	4,679	2.9	1,387,779	5.1

4.9 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN BY FLIGHT PLAN  
BY AIRCRAFT TYPE

PAGE 4 OF 4

TOTAL

OTHER/UNKNOWN FLIGHT PLAN

NO FLIGHT PLAN

AIRCRAFT TYPE	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR	NUMBER ACTIVE AIRCRAFT	PERCENT STANDARD ERROR	HOURS FLOWN	PERCENT STANDARD ERROR
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FIXED WING - TURBOJET

2 ENGINE: TOTAL	563	16.5	5,999	27.7	104	45.2	1,660	72.0	3,936	2.4	1,113,752	
TURBOJET: OTHER	44	54.5	550	61.5	2	200.0	14	285.5	276	14.9	50,851	
TURBOJET: TOTAL	607	15.8	6,549	25.9	106	44.3	1,675	71.4	4,212	2.5	1,164,602	
FIXED WING: TOTAL	140,968	1.1	11,218,229	2.6	14,815	5.4	1,547,650	10.0	178,694	0.7	25,414,678	

ROTORCRAFT

PISTON	1,839	10.0	349,827	15.2	338	32.2	98,180	40.6	2,287	8.1	533,173	
TURBINE	2,174	8.1	968,100	13.3	494	22.7	269,019	27.2	3,667	3.4	2,115,053	
ROTORCRAFT: TOTAL	4,014	6.3	1,317,927	10.6	832	18.8	367,200	22.7	5,954	3.8	2,648,226	
OTHER AIRCRAFT	5,922	4.1	376,355	10.9	401	22.9	14,374	25.7	7,353	3.1	445,246	

TOTAL	150,904	1.0	12,912,514	2.5	16,048	5.1	1,929,224	9.1	192,002	0.7	28,508,148	
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NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

## CHAPTER V

### FUEL CONSUMPTION

The 1991 general aviation aircraft fleet consumed 930 million gallons of fuel, consisting of 577 million gallons of jet fuel and 354 million gallons of aviation gasoline. Although data on propane fuel use were collected, they are not included because the data collected were not sufficient to provide reasonable estimates.

This chapter presents three tables and three figures. Table 5.1 presents consumption statistics. Table 5.2 shows, by aircraft type, fuel consumption by fuel grade, average gallons consumed per hour, fuel use in millions of gallons, and percent of standard error. The final table in this chapter, Table 5.3, presents data on the average rate of fuel consumption and total fuel consumed in millions of gallons by SDR Manufacturer/Model group.

Figures 5.1 and 5.2 show the 1991 general aviation fleet's fuel consumption rates and estimated fuel consumption by aircraft type, respectively. Figure 5.3 depicts the percentage fuel consumption of the general aviation fleet by fuel grade.

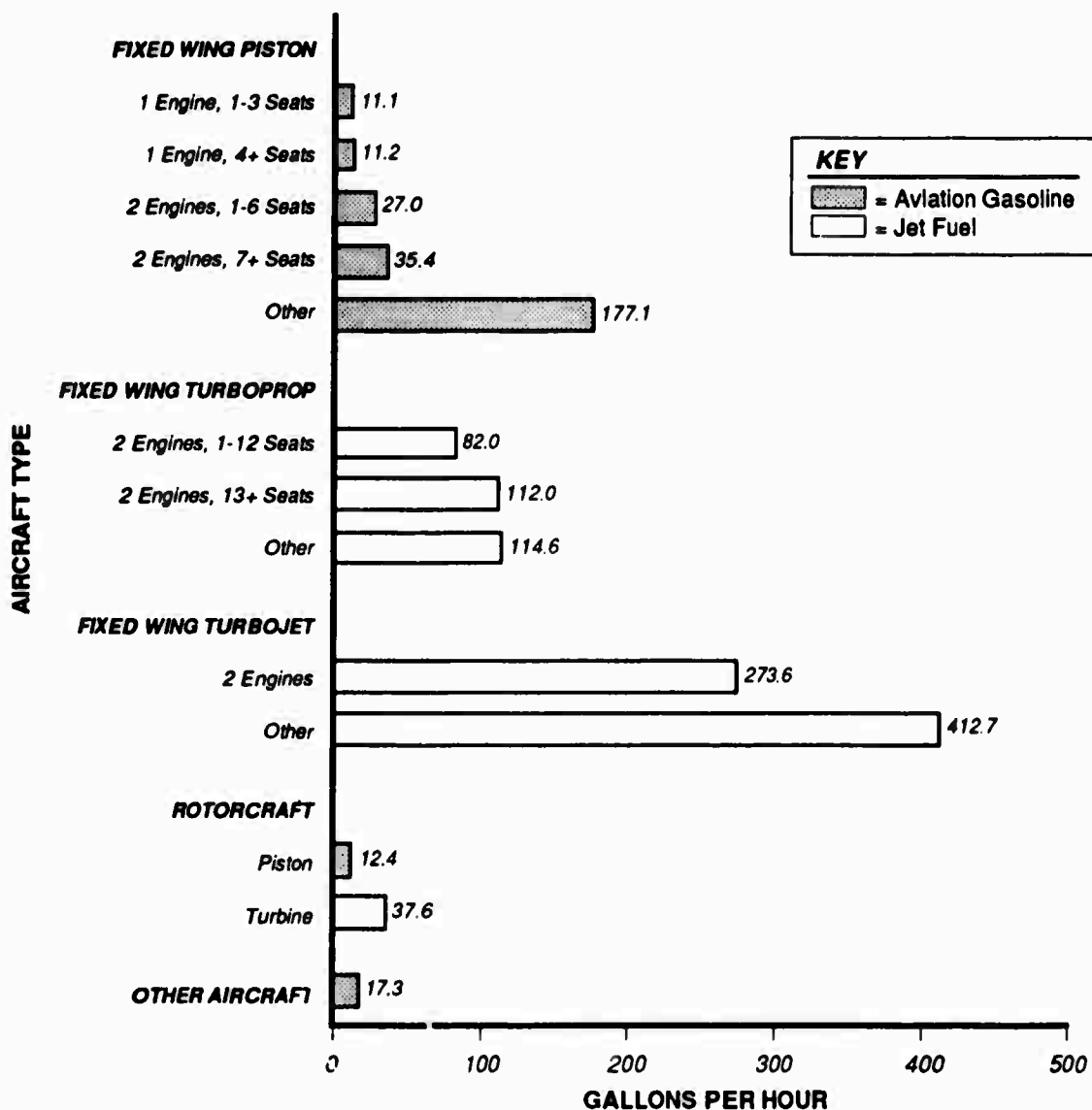
Some interesting points concerning fuel consumption are:

- o Of the 930 million gallons of fuel consumed by the 1991 general aviation fleet, 38 percent was aviation gasoline, and 62 percent was jet fuel.
- o Fixed wing piston aircraft, with a low average fuel consumption rate of 14 gallons per hour, nevertheless accounted for approximately 37 percent (341 million gallons) of the total fuel consumed by the general aviation fleet in 1991, due to their large numbers. This aircraft type also accounted for 97 percent of the aviation gasoline consumed.
- o Turbojet aircraft had the highest rates of fuel consumption: 412.7 gallons per hour for "other" turbojets, and 273.6 gallons per hour for two engine turbojets. In contrast, fuel consumption of one engine piston aircraft averaged 11.2 gallons per hour.
- o Turbojets, which accounted for 38 percent of active turbine-engine aircraft in the 1991 general aviation fleet, consumed 61 percent of all jet fuel used by the general aviation fleet.
- o Averaging 90 gallons per hour, turboprops consumed 135 million gallons of jet fuel (23 percent of the total jet fuel consumed). Overall, turboprops accounted for 14 percent of the aviation fuel consumed in 1991.

- o Of the 354 million gallons of aviation gasoline consumed by the fixed wing piston aircraft, approximately 14 million gallons were 80 octane gasoline, 66 million gallons were 100 octane gasoline, 251 million gallons were 100 octane low lead gasoline, and 17 million gallons were automobile gasoline.

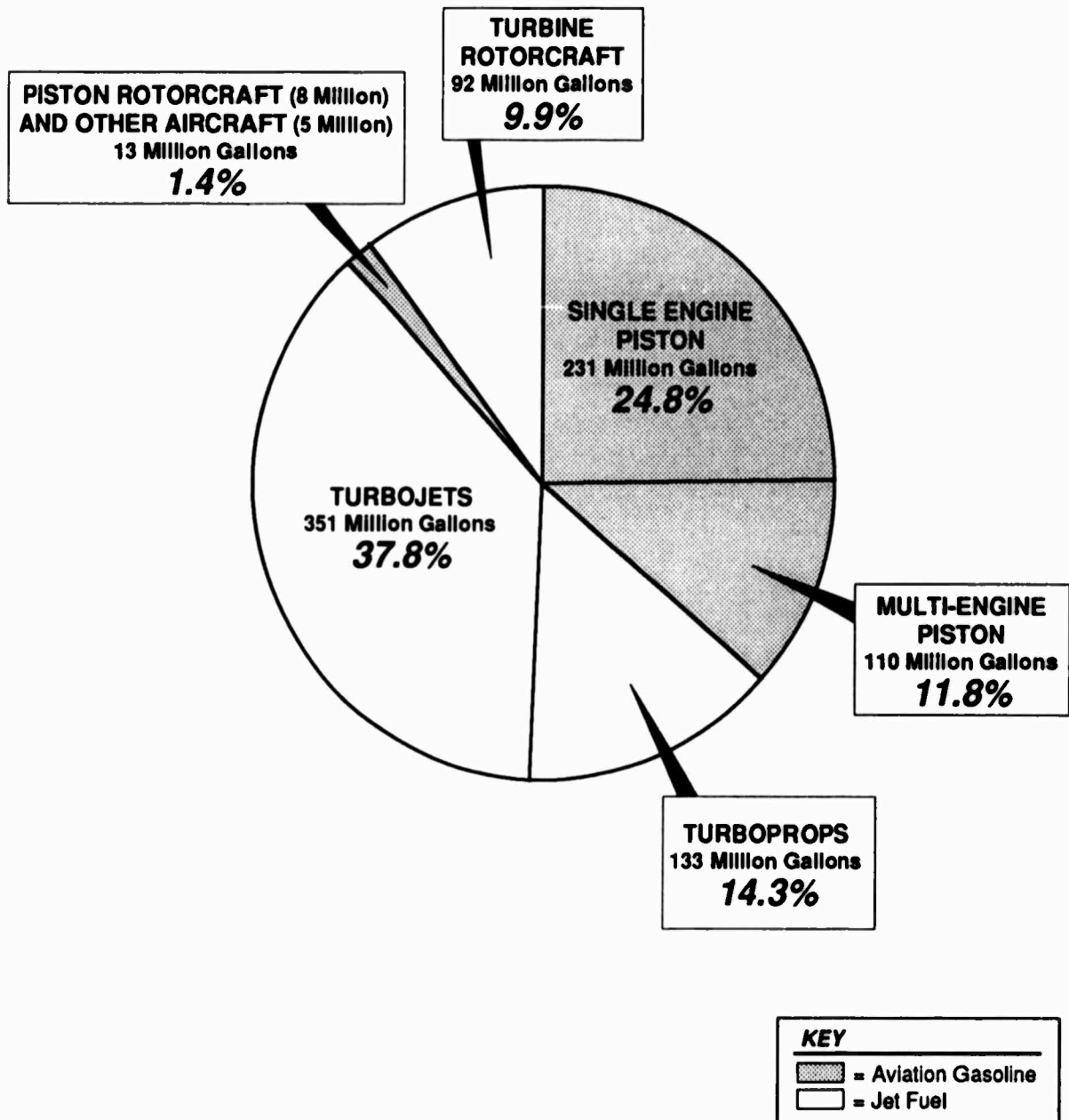


**Figure 5.1**  
**1991 GENERAL AVIATION**  
**AVERAGE FUEL CONSUMPTION RATES (GALLONS PER HOUR)**  
**BY AIRCRAFT TYPE**



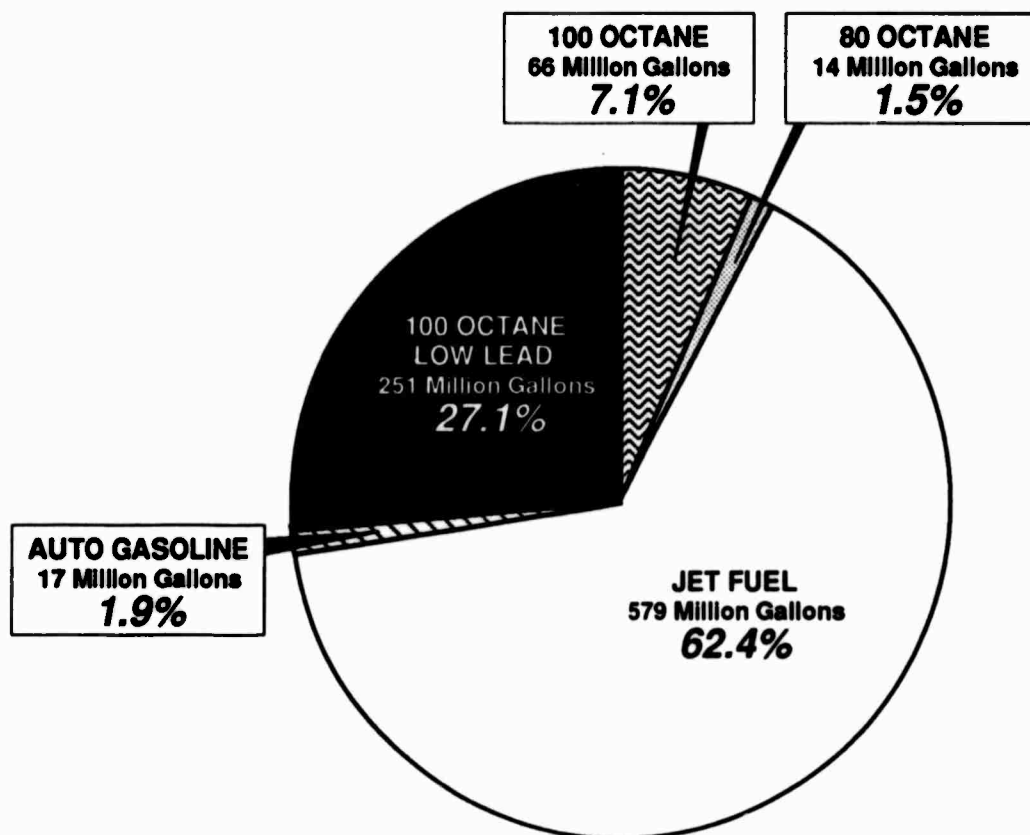
**SOURCE: Table 5.1**

**Figure 5.2**  
**1991 GENERAL AVIATION**  
**ESTIMATED FUEL CONSUMPTION BY AIRCRAFT TYPE**



**SOURCE: Table 5.1**

**Figure 5.3**  
**1991 GENERAL AVIATION FUEL CONSUMPTION**  
**BY FUEL GRADE**



**NOTE:** Propane fuel data were collected but are not included because the data collected were not sufficient to provide reasonable estimates.

**SOURCE:** Table 5.2

5.1 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY AIRCRAFT TYPE

AIRCRAFT TYPE	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
FIXED WING			
FIXED WING - PISTON			
1 ENG: 1-3 SEATS	11.1	75.6	4.0
1 ENG: 4+ SEATS	11.2	155.1	2.6
1 ENGINE: TOTAL	11.2	230.8	2.2
2 ENG: 1-6 SEATS	27.0	58.6	5.4
2 ENG: 7+ SEATS	35.4	49.7	6.4
2 ENGINE: TOTAL	29.7	108.3	4.1
PISTON: OTHER	177.1	2.0	35.4
PISTON: TOTAL	13.5	341.1	2.0
FIXED WING - TURBOPROP			
2 ENG: 1-12 SEATS	82.0	86.4	5.8
2 ENG: 13+ SEATS	112.0	33.9	16.0
2 ENGINE: TOTAL	88.0	120.2	6.2
TURBOPROP: OTHER	114.6	13.0	39.5
TURBOPROP: TOTAL	90.3	133.3	6.8

5.1 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY AIRCRAFT TYPE

AIRCRAFT TYPE	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
FIXED WING - TURBOJET			
2 ENGINE: TOTAL	273.6	324.8	5.6
TURBOJET: OTHER	412.7	26.4	16.8
TURBOJET: TOTAL	280.8	351.1	5.3
FIXED WING: TOTAL	26.1	825.5	2.6
ROTORCRAFT			
PISTON	12.4	7.7	13.0
TURBINE	37.6	92.4	9.2
ROTORCRAFT: TOTAL	32.6	100.1	8.5
OTHER AIRCRAFT (*)	17.3 (*)	4.8 (*)	17.5 (*)
TOTAL	26.6	930.4	2.5
TOTAL: JET FUEL	107.1	576.8	3.9
TOTAL: AVIATION GASOLINE	13.5	353.6	2.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) PROPANE FUEL DATA WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

5.2 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY FUEL GRADE BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	FUEL GRADE						TOTAL
	80 OCTANE	100 OCTANE	100 LOWLEAD	AUTO GAS	JET FUEL	PROPANE	
FIXED WING							
FIXED WING - PISTON							
1 ENG: 1-3 SEATS							
AVERAGE GPH	6.8	13.7	10.0	10.1	N/A	N/A	11.1
FUEL USE (mil. gal)	5.1	15.6	41.3	11.1	N/A	N/A	75.6
% STD. ERROR	6.8	11.6	7.3	13.1	N/A	N/A	4.0
1 ENG: 4+ SEATS							
AVERAGE GPH	10.5	11.2	11.2	9.8	N/A	N/A	11.2
FUEL USE (mil. gal)	8.6	29.9	110.2	6.2	N/A	N/A	155.1
% STD. ERROR	5.7	4.0	3.0	4.4	N/A	N/A	2.6
1 ENGINE: TOTAL							
AVERAGE GPH	9.0	11.9	10.9	9.9	N/A	N/A	11.2
FUEL USE (mil. gal)	13.7	45.5	151.5	17.3	N/A	N/A	230.8
% STD. ERROR	4.4	4.8	2.9	8.5	N/A	N/A	2.2
2 ENG: 1-6 SEATS							
AVERAGE GPH	23.4	28.1	26.9	30.1	N/A	N/A	27.0
FUEL USE (mil. gal)	0.3	9.7	48.6	0.0	N/A	N/A	58.6
% STD. ERROR	49.0	9.9	6.7	63.1	N/A	N/A	5.4
2 ENG: 7+ SEATS							
AVERAGE GPH	31.6	38.4	34.4	47.9	N/A	N/A	35.4
FUEL USE (mil. gal)	0.0	8.7	40.6	0.0	N/A	N/A	49.7
% STD. ERROR	47.2	18.6	9.3	82.7	N/A	N/A	6.4
2 ENGINE: TOTAL							
AVERAGE GPH	24.2	31.2	29.3	39.5	N/A	N/A	29.7
FUEL USE (mil. gal)	0.4	18.4	89.3	0.0	N/A	N/A	108.3
% STD. ERROR	44.1	10.2	5.6	55.1	N/A	N/A	4.1
PISTON: OTHER							
AVERAGE GPH	0.0	230.0	177.1	0.0	N/A	(*)	177.1
FUEL USE (mil. gal)	0.0	0.1	1.9	0.0	N/A	(*)	2.0
% STD. ERROR	0.0	98.2	37.5	0.0	N/A	(*)	35.4
PISTON: TOTAL							
AVERAGE GPH	9.0	13.9	13.5	10.0	N/A	N/A	13.5
FUEL USE (mil. gal)	14.1	64.1	242.6	17.3	N/A	N/A	341.1
% STD. ERROR	4.4	4.5	2.8	8.5	N/A	N/A	2.0

5.2 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY FUEL GRADE BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOWLEAD	AUTO GAS	JET FUEL PROPANE	
FIXED WING - TURBOPROP						
2 ENG: 1-12 SEATS	AVERAGE GPH					
	FUEL USE (mil gal)					
	% STD. ERROR					
2 ENG: 13+ SEATS	AVERAGE GPH					
	FUEL USE (mil gal)					
	% STD. ERROR					
2 ENGINE:	TOTAL					
	AVERAGE GPH					
	FUEL USE (mil gal)					
% STD. ERROR						
TURBOPROP: OTHER						
AVERAGE GPH						
	FUEL USE (mil gal)					
	% STD. ERROR					
TURBOPROP: TOTAL						
AVERAGE GPH						
	FUEL USE (mil gal)					
	% STD. ERROR					
FIXED WING - TURBOJET						
2 ENGINE:	TOTAL					
	AVERAGE GPH					
	FUEL USE (mil gal)					
% STD. ERROR						
TURBOJET: OTHER						
AVERAGE GPH						
	FUEL USE (mil gal)					
	% STD. ERROR					
TURBOJET: TOTAL						
AVERAGE GPH						
	FUEL USE (mil gal)					
	% STD. ERROR					

5.2 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY FUEL GRADE BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	FUEL GRADE					TOTAL
	80 OCTANE	100 OCTANE	100 LOWLEAD	AUTO GAS	JET FUEL PROPANE	
FIXED WING: TOTAL						
AVERAGE GPH	9.0	13.9	13.5	10.0	178.7	26.1
FUEL USE (mil gal)	14.1	64.1	242.6	17.3	486.2	825.5
% STD. ERROR	4.4	4.5	2.8	8.5	4.6	2.6
ROTORCRAFT						
PISTON						
AVERAGE GPH	16.6	10.1	12.2	6.2	N/A	12.4
FUEL USE (mil gal)	0.2	1.0	6.2	0.1	N/A	7.7
% STD. ERROR	50.7	22.4	16.4	43.7	N/A	13.0
TURBINE						
AVERAGE GPH	N/A	N/A	N/A	N/A	38.7	37.6
FUEL USE (mil gal)	N/A	N/A	N/A	N/A	92.5	92.4
% STD. ERROR	N/A	N/A	N/A	N/A	32.6	9.2
ROTORCRAFT: TOTAL						
AVERAGE GPH	16.6	10.1	12.2	6.2	38.7	32.6
FUEL USE (mil gal)	0.2	1.0	6.2	0.1	92.5	100.1
% STD. ERROR	50.7	22.4	16.4	43.7	32.6	8.5
OTHER AIRCRAFT						
AVERAGE GPH	5.3	11.2	11.1	7.9	0.0	17.3
FUEL USE (mil gal)	0.0	0.7	2.3	0.0	0.0	4.8
% STD. ERROR	49.2	18.3	25.4	44.2	0.0	17.5
TOTAL						
AVERAGE GPH	9.1	13.9	13.5	9.9	110.8	26.6
FUEL USE (mil gal)	14.3	65.7	251.1	17.4	578.6	930.4
% STD. ERROR	4.4	4.4	2.7	8.5	6.5	2.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.  
WHERE THE NOTATION "N/A" APPEARS, THE FUEL GRADE IS NOT APPLICABLE FOR THE SPECIFIED AIRCRAFT TYPE.  
(\*) PROPANE FUEL DATA WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.



5.3 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 6

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
OTHER 1	12.2	6.6	18.2
OTHER 2	13.1	2.3	18.6
OTHER 3	38.7	0.6	17.4
OTHER 4	41.4	0.8	48.5
OTHER 5	53.2	0.1	111.2
OTHER 6	79.4	12.6	23.5
OTHER 7	103.7	7.2	49.3
OTHER 8	273.2	6.3	78.4
OTHER 9	333.7	42.7	24.6
OTHER 10	343.7	6.3	34.2
OTHER 11	13.2	0.7	43.3
OTHER 12	194.3	9.4	48.3
OTHER 13	12.4	2.3	26.2
ADAMS A50S	0.0	0.0	0.0
AERORSJ2	10.0	0.0	51.9
AEROSPAS355	51.2	2.9	14.2
AEROSPSA365	55.0	1.9	73.8
AIRPTSA	60.1	0.8	27.5
AIRTRCAT300	9.3	0.0	44.2
AIRTRCAT500	35.4	2.1	15.3
AMD FALC20	224.8	7.2	12.4

5.3 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
AMRG5B	322.9	7.5	19.9
ARCNEH37	0.0	0.0	0.0
ARCTICS1B1	4.7	0.0	30.4
ARONCA58	9.2	0.1	23.4
ARONCAC3	4.3	0.0	29.9
AVIANWFALCON	0.0	0.0	0.0
AYRES S2	37.4	8.4	13.7
BAG B206	105.4	2.5	18.7
BBAVIA11	14.0	0.5	21.3
BBAVIA3	6.0	0.9	19.8
BEECH 17	84.4	4.8	10.3
BEECH 1900	85.0	0.0	55.6
BEECH 23	99.3	23.0	10.1
BEECH 33	112.1	2.6	24.3
BEECH 36	13.5	8.1	8.2
BEECH 50	13.6	0.2	23.2
BEECH 56	26.6	6.4	12.5
BEECH 60	31.1	8.5	15.5
BEECH 76	42.5	0.3	39.5
BEECH 80	6.5	0.3	16.1
BEECH 95	78.7	16.2	12.2

5.3 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
BELL 204	81.8	2.6	48.2
BELL 206	93.0	0.9	17.9
BELL 214	102.0	4.4	12.3
BELL 412	81.8	1.1	44.4
BLANCA11	17.7	1.5	25.4
BLANCA1419	9.8	0.1	28.9
BLANCA7	10.7	2.0	11.3
BNORM BN2	9.4	0.2	18.7
BOEING737	1312.7	3.4	53.1
BOLKMS105	13.8	1.1	41.5
BRAERODH125	58.9	4.0	44.0
BRWSTRFLEET2	264.6	18.4	13.5
CAMRONMODELO	8.1	0.0	28.0
CESSNA120	0.0	0.0	0.0
CESSNA170	5.3	0.3	15.7
CESSNA177	8.6	32.7	7.2
CESSNA185	12.4	2.1	12.3
CESSNA195	19.3	5.6	17.0
CESSNA207	12.2	0.2	19.6
CESSNA303	39.4	1.9	21.4
CESSNA320	11.3	0.2	21.5

5.3 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 4 OF 6

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
CESSNA337	34.3	0.2	20.5
CESSNA402	34.9	3.8	17.5
CESSNA414	40.0	2.0	28.2
CESSNA441	44.1	7.2	12.5
CESSNA650	172.5	38.1	14.8
CHILD S1	32.7	0.0	32.7
CNDALRCL600	13.7	0.0	25.9
CONAERLA4	0.0	0.0	0.0
CURTISTRVAIR	3.6	0.0	56.0
CVAC BT13	0.0	0.0	0.0
DHAV DHC1	365.1	2.3	66.2
DHAV DHC4	11.3	0.0	30.1
DOUG A26	79.4	1.8	35.7
DOUG DC8	147.2	0.0	51.7
EMB 110	806.4	3.0	102.5
FRCHILD24	13.5	0.8	23.6
GLASER300	0.0	0.0	0.0
GROB 103TWN	2.1	0.0	37.0
GRUMAVAA1	0.0	0.0	0.0
GRUMAVTBM	9.9	1.1	12.9
GULSTM680	11.9	0.7	16.7

5.3 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mill gal)	PERCENT STANDARD ERROR
GULSTMAA5	67.3	0.2	59.2
GULSTMGA7	602.0	48.4	18.4
HILLERFH1100	15.6	0.0	61.0
HWKSLYDH104	22.8	0.1	39.8
ISRAEL1123	266.3	9.2	17.5
LEAR 24	235.7	11.3	14.3
LAHED1329	260.3	17.3	15.1
LAHEDT33	97.2	0.1	58.6
MAULE M5	4.9	0.3	19.9
MILITARY204	12.3	0.1	28.3
MOONEYM20	12.1	0.2	58.8
MULTICD16	16.5	0.0	22.9
NATBAL752	132.0	0.1	35.1
NORMST65	16.7	0.0	31.8
PICARDAX6	49.6	0.0	109.3
PIPER J4	0.0	0.0	0.0
PIPER PA16	6.3	0.1	32.0
PIPER PA23	8.4	1.7	17.7
PIPER PA31	9.6	5.5	11.1
PIPER PA38	75.2	7.6	23.5
RAVEN RX6	97.5	2.0	14.6

5.3 1991 GENERAL AVIATION AVERAGE FUEL CONSUMPTION RATE AND TOTAL FUEL CONSUMED  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/MODEL GROUP	AVERAGE RATE GPH	ESTIMATED FUEL USE (mil gal)	PERCENT STANDARD ERROR
RAVEN S66	0.0	0.0	0.0
ROLSCHLS	32.7	0.1	16.6
SCHLEPASK21	10.1	0.0	23.6
SCHLERKA6	0.0	0.0	0.0
SKRSKYS55	31.0	1.4	22.5
SLINDS100	83.3	0.2	69.7
SNIAS SA341	35.5	1.2	19.2
SPRTHCIRBUS	12.6	0.0	27.1
STNSONJR	0.0	0.0	0.0
SUPAC LA	11.1	0.0	24.2
TCRAFTD	88.4	1.1	24.2
TEMCO 11A	4.3	0.0	103.2
TRYTK65	12.2	0.0	23.7
VALENT17	4.0	0.0	57.8
MACO UPF7	8.4	0.0	21.0
TOTAL	26.6	927.9	0.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX B FOR SDR AIRCRAFT GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

## CHAPTER VI

### AIRFRAME HOURS AND ENGINE ACTIVITY

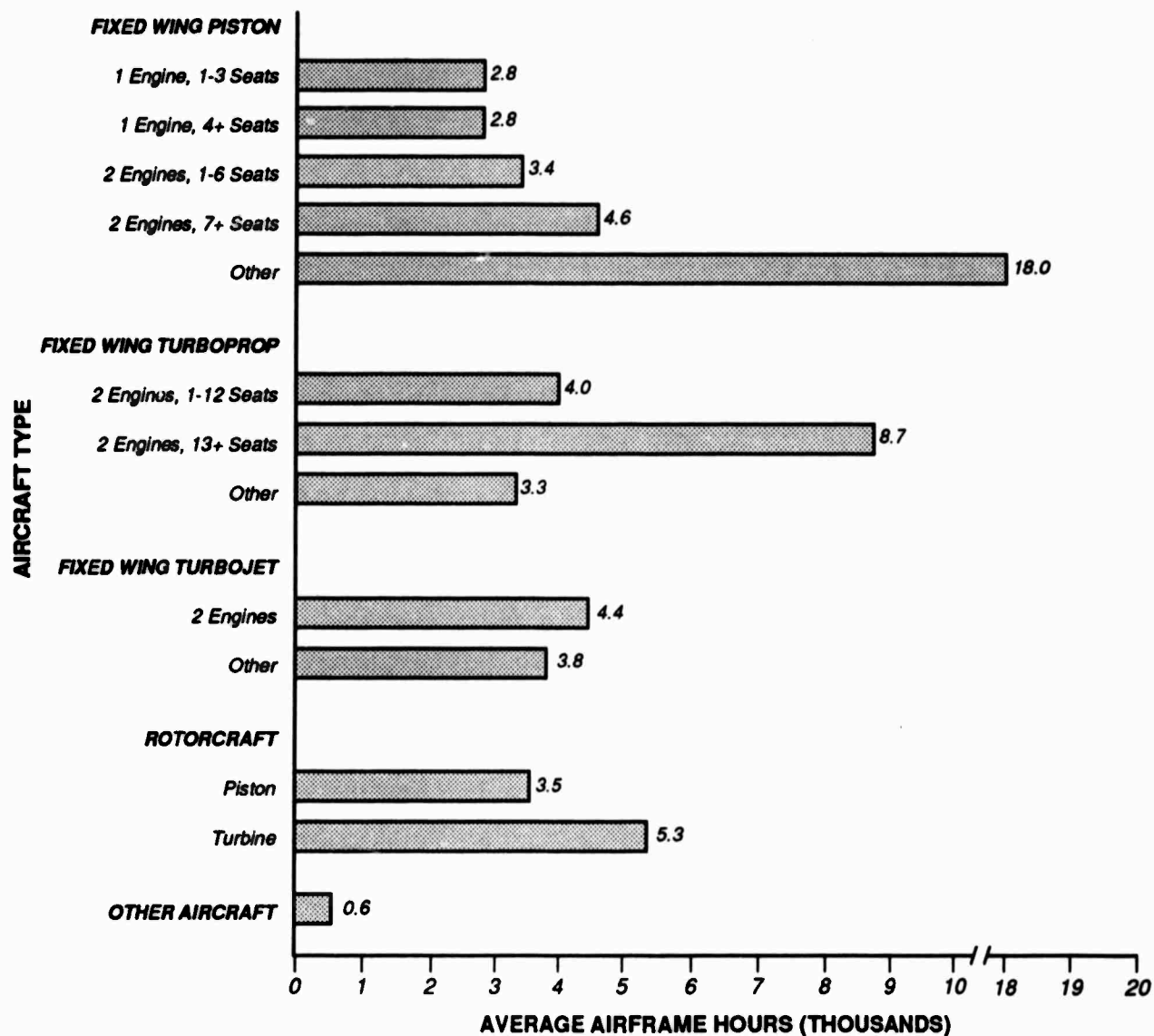
The subject of aircraft aging has become increasingly important because of questions raised about the safety of commercial air carriers relative to the age of their aircraft. Similar questions might be asked of the general aviation fleet. Data in this chapter can serve as input to studies correlating age and safety.

This chapter presents three tables and one figure. Table 6.1 gives data on the average airframe hours per active aircraft by aircraft type. Table 6.2 shows the average airframe hours per active aircraft by SDR Manufacturer/Model Group. Table 6.3 shows the number of engines on active aircraft and the average hours per engine for each aircraft by engine SDR Manufacturer/Model Group. Figure 6.1 graphically displays the data provided in Table 6.1.

Major findings of this chapter include:

- o The average lifetime airframe hours for the 1991 active general aviation population was 2,893 hours. In contrast, the average lifetime airframe hours for the two engine turboprop with 13 or more seats (8,653 hours) and the "other" piston aircraft (18,002 hours), were more than triple the average lifetime airframe hours of the 1991 active general aviation fleet.
- o The estimated total airframe hours of the 1991 general aviation fleet was more than 590 million hours.
- o The average hours per engine data presented in Table 6.3 vary considerably among the different SDR aircraft engine manufacturers.

**Figure 6.1**  
**1991 GENERAL AVIATION AVERAGE AIRFRAME HOURS**  
**PER ACTIVE AIRCRAFT BY AIRCRAFT TYPE**



**SOURCE: Table 6.1**



6.1 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS	88,322	55,652	1.6	63.0	1.0	157,834,432	2.5	2,820.5	2.0
1 ENG: 4+ SEATS	118,049	98,450	0.8	83.4	0.7	271,674,688	1.9	2,764.8	1.7
1 ENGINE: TOTAL	206,371	154,102	0.8	74.7	0.6	429,509,216	1.5	2,784.2	1.3
2 ENG: 1-6 SEATS	17,359	13,561	2.5	78.1	2.0	45,770,224	3.8	3,396.4	2.7
2 ENG: 7+ SEATS	8,464	7,557	1.7	89.3	1.5	34,997,072	6.2	4,555.3	4.7
2 ENGINE: TOTAL	25,823	21,119	1.7	81.8	1.4	80,767,320	3.4	3,762.7	2.4
PISTON: OTHER	272	127	22.0	46.7	10.3	2,490,050	16.7	18,002.4	11.2
PISTON: TOTAL	232,466	175,347	0.7	75.4	0.5	512,766,432	1.4	2,885.7	1.2
FIXED WING - TURBOPROP									
2 ENG: 1-12 SEATS	4,482	3,820	2.8	85.2	2.4	15,572,461	4.4	4,027.4	3.4
2 ENG: 13+ SEATS	1,253	577	13.0	46.0	6.0	5,104,866	16.8	8,652.8	7.2
2 ENGINE: TOTAL	5,735	4,398	3.0	76.7	2.3	20,677,328	5.3	4,465.2	3.1
TURBOPROP: OTHER	544	522	2.5	96.0	2.4	1,681,828	56.7	3,282.5	56.1
TURBOPROP: TOTAL	6,279	4,920	2.7	78.4	2.1	22,359,156	6.5	4,313.9	6.1

6.1 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
FIXED WING - TURBOJET									
2 ENGINE: TOTAL	4,403	4,066	1.9	92.3	1.8	19,246,144	4.6	4,407.4	4.0
TURBOJET: OTHER	638	286	14.3	44.8	6.4	1,790,610	20.3	3,880.9	7.4
TURBOJET: TOTAL	5,041	4,353	2.0	86.4	1.7	21,036,756	4.6	4,374.1	3.8
FIXED WING: TOTAL	243,786	184,620	0.7	75.7	0.5	556,162,368	1.3	2,938.0	1.2
ROTORCRAFT									
PISTON	5,848	2,470	7.6	42.2	3.2	9,619,423	13.9	3,523.0	9.5
TURBINE	4,626	3,822	2.9	82.6	2.4	19,878,854	8.5	5,373.6	9.0
ROTORCRAFT: TOTAL	10,474	6,292	3.5	60.1	2.1	29,498,280	7.3	4,636.4	6.9
OTHER AIRCRAFT	10,781	7,563	2.9	70.2	2.1	4,449,224	5.6	554.2	5.4
TOTAL	265,041	198,475	0.6	74.9	0.5	590,109,440	1.3	2,892.6	1.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 1 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
OTHER 1	19,208	9,301	5.5	48.4	2.7	4,951,574	14.3	532.4	13.2
OTHER 2	1,970	1,271	8.4	64.5	5.4	2,990,666	20.1	2,353.7	18.3
OTHER 3	328	162	7.8	49.3	3.8	411,820	17.3	2,546.2	15.4
OTHER 4	256	124	17.7	48.6	8.6	563,064	33.0	4,528.2	27.9
OTHER 5	157	46	56.6	29.1	16.4	317,872	85.6	6,968.0	64.2
OTHER 6	469	373	8.4	79.4	6.7	804,533	21.2	2,159.4	19.4
OTHER 7	360	132	41.6	36.8	15.3	602,292	53.1	4,549.0	33.1
OTHER 8	197	203	0.0	103.3	0.0	895,810	105.8	4,402.5	105.8
OTHER 9	460	397	10.9	86.4	9.4	1,583,973	28.7	3,985.0	26.6
OTHER 10	328	124	28.4	37.9	10.8	292,025	33.9	2,346.3	18.5
OTHER 11	1,991	459	17.2	23.0	4.0	325,105	31.5	708.9	26.4
OTHER 12	217	102	22.7	46.9	10.6	810,908	42.1	7,965.1	35.5
OTHER 13	3,847	2,914	4.9	75.8	3.7	967,899	16.5	332.1	15.8
ADAMS A50S	135	91	21.3	67.1	14.3	21,178	23.8	233.6	10.7
AERORSJ2	33	6	48.8	19.3	9.4	1,298	56.7	203.7	28.8
AEROSPAS355	116	107	6.1	92.4	5.7	349,230	23.3	3,258.8	22.5
AEROSPAS316	90	50	44.9	55.7	25.0	438,634	62.8	8,750.6	43.9
AEROSPAS365	28	27	6.0	96.2	5.7	52,920	15.6	1,964.6	14.4
AGUSTA109	65	53	13.3	81.0	10.8	64,676	23.7	1,228.2	19.6
AIRPTSA	209	92	15.5	43.9	6.8	271,826	17.0	2,962.2	6.9
AIRSPC18	27	9	35.3	34.0	12.0	4,466	42.0	486.8	22.8

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 2 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
AIRTRCAT300	425	326	11.9	76.7	9.1	1,221,666	13.9	3,749.2	7.3
AIRTRCAT400	134	123	11.1	91.9	10.2	166,915	21.5	1,355.2	18.4
AIRTRCAT500	99	95	8.3	96.5	8.0	59,875	25.8	627.0	24.5
AMD FALC10	107	102	5.3	95.0	5.0	459,855	9.9	4,525.5	8.4
AMD FALC20	174	164	6.6	94.1	6.2	1,009,240	17.4	6,162.8	16.1
AMD FALC50	122	80	18.3	65.2	11.9	243,187	23.8	3,055.6	15.2
AMRGENAG5B	67	61	4.8	91.7	4.4	18,199	14.7	296.3	13.9
AMTR THK	20	18	16.7	91.9	15.4	41,974	46.4	2,283.3	43.3
ARCRNEH37	44	0	0.0	0.0	0.0	0	0.0	0.0	0.0
ARCTICS1A	89	23	23.6	25.6	6.0	68,505	28.6	3,011.6	16.1
ARCTICS1B1	26	12	26.5	45.8	12.1	13,973	31.0	1,174.3	16.1
ARONCA15	203	97	14.8	47.8	7.1	238,291	17.8	2,454.4	9.9
ARONCA58	144	64	24.3	44.2	10.8	161,684	26.2	2,538.1	9.6
ARONCA65	151	68	16.9	45.2	7.6	200,377	19.1	2,939.0	8.7
ARONCAC3	53	8	36.1	16.0	5.8	10,230	38.5	1,210.1	13.3
AROSTRX8	102	109	0.0	106.8	0.0	11,020	15.6	101.1	15.6
AVIANWFALCON	25	24	15.3	94.9	14.5	6,766	23.4	285.2	17.7
AVIANWSKYHWK	48	47	4.9	98.5	4.8	9,062	25.7	191.7	25.3
AYRES S2	814	727	7.3	89.3	6.5	3,664,342	11.9	5,045.8	9.4
BAG	37	20	18.2	54.6	9.9	54,518	19.4	2,700.0	6.8
BAG B206	26	3	188.1	12.6	23.8	7,423	188.3	2,257.5	8.0

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 3 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BALWKSPIREFY	1,750	1,100	12.4	62.8	7.8	205,270	19.9	186.7	15.6
BBAVIA11	824	384	18.7	46.6	8.7	651,857	19.8	1,696.8	6.6
BBAVIA7	3,537	1,989	9.2	56.2	5.2	5,767,949	11.2	2,899.5	6.4
BBAVIA8	224	155	9.8	69.2	6.8	199,026	14.4	1,284.5	10.6
BEECH 100	224	198	8.3	88.4	7.4	1,093,866	11.9	5,525.2	8.5
BEECH 17	199	119	22.0	59.7	13.1	308,097	32.6	2,592.4	24.0
BEECH 18	781	471	17.1	60.4	10.3	5,414,977	20.4	11,417.1	11.6
BEECH 1900	122	67	34.2	54.6	18.6	182,699	54.3	2,744.1	42.2
BEECH 200	781	717	5.1	91.8	4.7	3,189,041	9.4	4,447.8	7.9
BEECH 23	2,613	2,421	3.8	92.7	3.6	5,978,833	6.6	2,469.4	5.4
BEECH 300	161	88	22.0	54.6	12.0	148,084	25.1	1,685.4	12.0
BEECH 33	2,058	1,918	3.6	93.2	3.3	4,644,687	8.4	2,421.7	7.6
BEECH 35	6,673	5,727	3.5	85.8	3.0	21,504,440	5.2	3,754.8	3.9
BEECH 36	2,439	2,213	3.7	90.7	3.4	4,418,673	11.1	1,997.1	10.4
BEECH 45	321	200	15.2	62.3	9.4	1,115,266	16.5	5,575.9	6.6
BEECH 50	325	161	15.1	49.6	7.5	751,951	17.2	4,663.1	8.3
BEECH 55	2,113	1,695	6.7	80.2	5.3	4,870,325	10.5	2,873.2	8.1
BEECH 56	60	46	14.6	76.9	11.2	100,648	18.6	2,181.5	11.5
BEECH 58	1,502	1,277	5.8	85.0	4.9	3,683,264	9.9	2,884.9	8.0
BEECH 60	393	328	13.2	83.4	11.0	689,598	19.0	2,104.3	13.6
BEECH 65	117	63	30.4	53.5	16.3	272,941	36.0	4,356.9	19.4

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 4 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BEECH 76	258	224	11.9	86.7	10.3	599,204	17.1	2,677.7	12.3
BEECH 77	225	197	6.5	87.4	5.7	555,324	14.4	2,825.4	12.8
BEECH 80	153	123	14.2	80.6	11.5	707,498	17.6	5,738.7	10.4
BEECH 90	1,019	871	7.7	85.5	6.6	3,817,689	10.5	4,381.9	7.1
BEECH 95	441	374	10.3	84.8	8.7	1,716,761	13.5	4,588.1	8.7
BEECH 99	115	63	35.6	54.6	19.4	1,410,327	39.1	22,472.3	16.1
BELL 204	25	19	26.5	77.0	20.4	59,635	39.5	3,099.5	29.3
BELL 205	32	31	8.8	96.2	8.5	225,476	27.1	7,324.3	25.6
BELL 206	1,850	1,760	3.7	95.1	3.5	11,156,977	13.5	6,338.9	12.9
BELL 212	98	94	5.0	96.2	4.8	792,042	12.2	8,401.2	11.2
BELL 214	14	8	41.6	55.0	22.9	40,988	46.9	5,325.8	21.7
BELL 222	69	53	18.1	76.5	13.9	87,802	32.8	1,663.6	27.3
BELL 412	92	86	10.3	93.3	9.6	149,786	78.4	1,745.5	77.8
BELL 47	814	437	18.4	53.7	9.9	3,257,034	21.4	7,445.4	11.0
BLANCA11	82	48	16.4	59.1	9.7	112,893	20.2	2,330.0	11.8
BLANCA1413	248	83	24.2	33.6	8.1	180,193	26.4	2,160.6	10.6
BLANCA1419	268	181	11.7	67.5	7.9	358,404	13.5	1,982.4	6.8
BLANCA17	1,007	890	6.8	88.4	6.0	1,383,716	10.3	1,555.2	7.7
BLANCA7	2,304	1,656	8.5	71.9	6.1	3,343,978	13.9	2,025.2	11.0
BLANCA8	452	385	9.3	85.3	7.9	485,951	25.5	1,260.8	23.8
BNORM BN2	89	96	0.0	107.5	0.0	312,035	41.1	3,261.5	41.1

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 5 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
BOEING727	43	17	51.3	38.9	19.9	543,126	51.3	32,507.0	0.0
BOEING737	20	0	0.0	0.0	0.0	0	0.0	0.0	0.0
BOEING75	1,944	789	14.2	40.6	5.8	3,223,118	17.7	4,084.6	10.5
BOLKMS105	184	110	40.3	59.6	24.0	401,757	45.3	3,660.8	20.8
BOLKMS117	121	108	9.9	89.1	8.9	175,774	15.1	1,630.8	11.3
BRAERODH125	205	192	6.2	93.5	5.8	600,964	20.7	3,136.5	19.7
BRASOVIS28	47	37	17.3	78.5	13.6	39,585	37.5	1,072.3	33.3
BRWSTFLEET2	29	8	22.7	27.3	6.2	25,826	28.4	3,257.9	17.1
BRWSTFLEET7	21	12	20.2	56.8	11.5	36,503	24.0	3,061.9	12.9
BURER 131	28	9	59.9	30.6	18.4	13,619	60.8	1,587.5	10.1
CAMRONMODELO	56	60	0.0	106.8	0.0	7,981	18.6	133.4	18.6
CAMRONMODELO	237	166	13.9	70.0	9.7	31,206	22.8	188.0	18.0
CASA C212	39	17	51.4	42.9	22.1	169,061	66.2	10,109.8	41.7
CESSNA120	847	638	10.8	75.3	8.1	1,833,353	12.8	2,872.8	7.0
CESSNA140	2,340	1,402	10.2	59.9	6.1	4,520,919	13.7	3,224.3	9.2
CESSNA150	18,048	14,267	3.0	79.0	2.4	57,109,960	5.2	4,003.1	4.2
CESSNA170	2,477	1,991	4.9	80.4	3.9	6,451,481	13.7	3,239.7	12.8
CESSNA172	23,918	21,087	1.8	88.2	1.6	68,289,480	5.8	3,238.5	5.5
CESSNA175	1,306	910	10.2	69.7	7.1	1,998,465	11.3	2,195.1	4.9
CESSNA177	2,717	2,418	4.6	89.0	4.1	5,293,787	12.6	2,188.9	11.7
CESSNA180	2,736	2,040	6.7	74.6	5.0	6,900,915	10.0	3,382.3	7.5

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 6 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
CESSNA182	13,480	11,489	2.4	85.2	2.1	29,054,986	4.3	2,528.9	3.6
CESSNA185	1,583	1,286	7.9	81.2	6.4	3,272,097	14.4	2,544.1	12.0
CESSNA188	1,519	1,121	10.6	73.8	7.8	3,358,673	13.0	2,997.4	7.5
CESSNA190	84	59	13.2	70.0	9.2	168,679	14.6	2,867.2	6.3
CESSNA195	498	147	31.4	29.5	9.3	468,124	32.0	3,185.1	6.3
CESSNA205	234	206	7.8	88.1	6.9	580,560	10.4	2,815.7	7.0
CESSNA206	2,532	2,229	4.5	88.0	4.0	7,509,966	12.6	3,369.7	11.7
CESSNA207	308	284	9.8	92.3	9.1	1,277,024	23.1	4,493.7	20.9
CESSNA208	113	122	0.0	107.7	0.0	291,952	24.4	2,398.6	24.4
CESSNA210	5,709	5,178	3.1	90.7	2.8	10,297,464	5.9	1,988.6	5.0
CESSNA303	134	110	12.3	82.0	10.1	227,047	17.7	2,065.8	12.7
CESSNA305	279	165	12.0	59.2	7.1	858,108	17.2	5,192.2	12.3
CESSNA310	2,999	2,286	7.9	76.2	6.0	9,475,008	11.0	4,145.5	7.7
CESSNA320	301	238	7.8	79.1	6.2	940,671	10.1	3,948.9	6.3
CESSNA335	40	31	11.2	76.9	8.6	66,876	14.3	2,174.3	8.9
CESSNA336	69	37	15.4	53.0	8.1	95,906	16.1	2,623.9	4.9
CESSNA337	1,105	809	12.3	73.2	9.0	1,828,094	16.4	2,259.4	10.9
CESSNA340	857	715	9.5	83.5	7.9	1,767,401	13.1	2,470.9	9.0
CESSNA401	192	206	0.0	107.5	0.0	791,947	20.3	3,837.0	20.3
CESSNA402	564	466	12.1	82.7	10.0	3,234,823	21.5	6,938.6	17.8
CESSNA404	121	125	0.0	103.2	0.0	831,187	37.1	6,656.4	37.1



6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
CESSNA411	118	84	13.3	70.9	9.4	311,722	15.2	3,725.8	7.3
CESSNA414	743	799	0.0	107.5	0.0	2,342,063	7.7	2,932.3	7.7
CESSNA421	1,140	1,106	3.5	97.0	3.4	3,591,279	10.1	3,247.9	9.5
CESSNA425	168	154	9.1	91.8	8.4	315,657	18.7	2,046.7	16.3
CESSNA441	208	168	11.3	80.8	9.1	710,454	18.9	4,225.1	15.1
CESSNA500	727	690	4.5	95.0	4.3	2,001,789	11.2	2,899.5	10.3
CESSNA501	261	245	5.5	94.0	5.2	632,558	11.2	2,578.8	9.7
CESSNA650	161	153	5.5	95.0	5.3	403,321	18.8	2,637.9	18.0
CESSNA750	66	23	21.3	35.2	7.5	63,469	23.2	2,728.9	9.1
CESSNAUC94	30	1	185.5	4.3	7.9	4,735	185.5	3,700.0	0.0
CHILD S1	58	48	18.4	83.0	15.3	59,475	24.3	1,235.2	15.8
CHILD S2	148	131	11.1	88.4	9.8	82,077	19.4	627.7	15.9
CHRIS HUSKY	95	75	12.1	78.6	9.5	18,779	21.2	251.6	17.4
CNDALRCL600	156	148	6.4	95.0	6.1	177,178	18.5	1,196.0	17.3
CNTRAR101	35	26	14.4	73.2	10.6	14,878	26.3	580.8	21.9
COMETH185	103	28	29.9	27.2	8.1	46,935	31.4	1,674.7	9.4
CONAERLA4	442	352	8.6	79.7	6.8	343,281	14.0	973.9	11.1
CURTISJR	23	4	49.8	16.2	8.1	2,326	57.1	623.5	28.0
CURTISROBIN	31	3	105.8	9.7	10.2	2,249	105.8	750.0	0.0
CURTISTRVAIR	184	34	26.8	18.6	5.0	129,412	37.6	3,789.7	26.5
CVAC 240	28	0	0.0	0.0	0.0	0	0.0	0.0	0.0

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 8 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
CVAC 440	16	17	0.0	107.5	0.0	758,508	0.0	44,100.0	0.0
CVAC BT13	122	52	30.4	42.2	12.8	201,555	35.0	3,911.2	17.4
CVAC STC580	46	23	60.3	49.1	29.6	476,386	64.2	21,085.5	21.8
DART G	23	6	67.1	25.5	17.1	8,039	67.1	1,369.0	0.0
DHAV DHC1	103	76	12.4	74.3	9.2	351,535	18.5	4,595.7	13.8
DHAV DHC2	219	94	39.7	42.9	17.0	1,211,955	44.8	12,903.5	20.8
DHAV DHC3	34	30	19.8	87.6	17.3	186,893	19.8	6,277.0	0.0
DHAV DHC4	30	32	0.0	107.5	0.0	180,597	0.0	5,600.0	0.0
DHAV DHC6	66	32	31.7	47.8	15.2	875,482	34.5	27,749.7	13.5
DHAVXXDH82	76	55	11.1	72.9	8.1	157,991	18.0	2,851.6	14.2
DCRNERD0228	39	21	28.8	54.6	15.7	110,958	31.1	5,213.4	11.8
DOUG A26	27	10	43.4	38.7	16.8	23,420	49.3	2,239.5	23.4
DOUG DC3	367	140	42.7	38.0	16.2	2,455,008	54.6	17,581.6	34.0
DOUG DC4	77	50	17.2	64.5	11.1	1,229,393	18.5	24,747.0	6.7
DOUG DC6	38	32	23.0	83.0	19.1	942,786	23.0	29,885.0	0.0
DOUG DC8	18	12	44.1	66.6	29.4	425,469	44.1	35,486.0	0.0
DOUG DC9	31	29	17.2	95.0	16.3	952,724	18.1	32,362.3	5.9
EAGLE DW	66	58	11.3	87.8	9.9	103,689	13.9	1,788.8	8.2
EAGLEBC7	77	59	12.9	76.7	9.9	16,311	19.4	276.1	14.6
EIRVON20	109	106	3.7	97.0	3.6	119,959	9.4	1,134.8	8.6
EMB 110	55	30	54.6	54.6	29.8	234,067	82.7	7,798.4	62.1

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 9 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
EMB 120	27	15	89.5	54.6	48.9	101,669	89.5	6,900.0	0.0
ENSTRMF28	397	266	10.5	67.1	7.1	386,656	22.9	1,453.2	20.0
FLEET 16B	24	4	75.0	15.3	11.5	3,621	75.0	985.0	0.0
FRCHLD22	21	5	35.1	25.5	9.0	8,202	36.1	1,529.8	8.1
FRCHLD24	283	93	15.2	32.7	5.0	195,178	17.8	2,108.4	8.6
FRCHLDC119	23	0	0.0	0.0	0.0	0	0.0	0.0	0.0
FRCHLDM62	237	104	14.4	43.8	6.3	180,307	18.3	1,735.2	11.3
GALAXYGX7	49	52	0.0	106.8	0.0	6,255	15.9	119.5	15.9
GENEALAX6	54	17	54.8	31.2	17.1	5,062	55.6	300.9	9.4
GLASER300	21	22	0.0	106.8	0.0	10,386	14.6	463.0	14.6
GLASER400	34	24	19.0	69.8	13.3	11,969	22.3	504.0	11.7
GLASFLH301	112	99	6.0	88.1	5.3	125,382	9.1	1,270.3	6.8
GLASFLLIBELL	39	37	4.7	95.4	4.5	27,539	12.4	740.3	11.4
GROB 103CAT	58	62	0.0	106.8	0.0	81,255	14.0	1,311.5	14.0
GROB 103TWN	26	28	0.0	106.8	0.0	40,288	22.5	1,450.6	22.5
GROB 109	63	58	4.9	92.4	4.5	49,117	27.1	843.4	26.7
GROB ASTIR	51	52	0.0	101.9	0.0	26,692	21.5	513.8	21.5
GRTLS2T1	189	129	12.3	68.4	8.4	146,086	38.3	1,129.7	36.2
GRUMANSAL6	56	26	26.5	46.3	12.2	87,035	27.3	2,826.2	0.0
GRUMAVAA1	547	482	5.1	88.0	4.5	950,380	9.8	1,973.4	8.4
GRUMAVAA5	1,027	924	5.4	90.0	4.9	2,803,825	25.7	3,033.6	25.2

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 10 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
GRUMAVG1159	34	32	7.3	55.0	6.9	189,894	13.0	5,881.2	10.7
GRUMAVG164	1,097	923	7.6	84.2	6.4	4,514,104	11.0	4,888.8	8.0
GRUMAVG21	49	30	14.3	61.2	8.7	294,356	22.9	9,813.5	17.9
GRUMAVTBM	33	25	12.8	75.4	9.7	57,875	13.8	2,326.9	5.0
GULSTM112	650	602	5.9	92.7	5.4	1,032,177	11.2	1,713.8	9.6
GULSTM500	291	299	0.0	102.7	0.0	1,790,019	9.7	5,991.0	9.7
GULSTM520	47	22	33.4	46.7	15.6	81,929	37.2	3,730.2	16.3
GULSTM560	106	81	20.1	76.4	15.4	215,980	27.5	2,667.4	18.7
GULSTM680	284	235	9.5	82.0	7.9	946,645	17.7	4,024.9	14.3
GULSTM680TP	72	31	38.5	43.7	16.8	108,213	46.7	3,438.0	26.4
GULSTM690TC	26	24	8.7	91.8	8.0	56,284	14.2	2,358.1	11.2
GULSTM690TP	353	318	8.5	90.2	7.7	1,340,351	13.0	4,209.9	9.9
GULSTMAA1	577	503	8.1	87.1	7.1	832,830	12.8	1,656.8	9.9
GULSTMAA5	614	548	6.6	89.2	5.9	1,147,232	9.6	2,094.6	6.9
GULSTMG1159	292	257	10.1	88.2	8.9	1,616,647	23.3	6,278.4	21.0
GULSTMG159	68	37	26.5	54.6	14.5	572,612	28.7	15,430.4	11.1
GULSTMGA4	90	56	15.6	62.4	9.7	366,318	23.2	6,524.2	17.2
GULSTMG73	29	12	31.1	41.5	12.9	129,134	32.6	10,727.0	9.9
GULSTMGA7	51	44	11.6	87.1	10.1	90,462	19.6	2,035.4	15.8
H23/HTE	33	14	50.3	42.3	21.3	36,385	50.4	2,606.3	4.0
H34/55	29	2	326.1	5.3	17.2	7,453	326.1	4,860.0	0.0

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 11 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
HELIO H295	75	65	11.9	87.0	10.4	204,872	25.8	3,140.5	22.9
HELIO H391	24	10	36.0	43.6	15.7	21,549	75.5	2,060.7	66.3
HILLERFH1100	59	35	31.0	60.0	18.6	180,612	37.2	5,102.3	20.5
HILLERUH12	548	308	28.3	56.3	15.9	1,943,713	45.5	6,335.2	35.9
HSPAVNHA200	40	34	31.1	85.5	26.6	33,000	32.7	965.3	10.1
HUGHES269	618	332	23.0	53.7	12.4	2,140,903	30.5	6,445.2	20.0
HUGHES369	571	462	8.6	80.9	7.0	2,173,783	17.5	4,703.6	15.3
HWKSLYDH104	29	31	0.0	107.5	0.0	95,576	3.8	3,065.8	3.8
HWKSLYDH125	166	156	6.3	94.2	5.9	787,808	12.4	5,038.1	10.7
HYNES B2	123	50	38.1	40.8	15.6	76,552	43.3	1,524.4	20.4
INTRCP200	33	26	8.9	78.3	7.0	59,194	10.8	2,291.0	6.1
ISRAEL1121	86	73	14.1	85.2	12.0	447,856	16.2	6,110.4	7.9
ISRAEL1123	21	20	9.5	95.0	9.0	79,113	12.5	3,967.0	8.2
ISRAEL1124	202	176	8.0	86.9	7.0	757,453	14.6	4,312.6	12.2
JBMSTRDGA15	84	34	22.6	40.1	9.1	63,776	24.8	1,894.1	10.2
LAIKFN10	34	3	106.4	8.5	9.1	174	106.4	60.0	0.0
LEAR 23	44	42	11.4	95.0	10.8	321,197	22.2	7,686.9	19.1
LEAR 24	156	148	7.9	95.0	7.5	1,273,202	12.6	8,594.2	9.9
LEAR 25	235	223	7.7	95.0	7.3	2,057,417	16.8	9,219.1	14.9
LEAR 35	407	387	7.2	95.0	6.8	1,856,535	17.5	4,803.3	16.0
LEAR 55	97	92	5.9	95.0	5.6	338,831	12.7	3,678.3	11.3

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 12 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
LET L13	158	160	0.0	101.6	0.0	264,336	13.6	1,647.2	13.6
LKHEED1329	76	47	23.7	61.4	14.5	256,692	28.4	5,505.2	15.6
LKHEED18	62	28	56.1	44.8	25.1	166,622	56.1	6,000.0	0.0
LKHEED282	30	6	94.0	21.5	20.3	0	0.0	0.0	0.0
LKHEEDP2V	36	2	226.9	5.8	13.2	9,412	226.9	4,500.0	0.0
LKHEEDPV1	35	4	147.9	11.9	17.7	8,305	147.9	1,986.5	0.4
LKHEEDT33	51	7	59.3	13.3	7.9	30,110	59.9	4,431.7	9.0
LUSCOM8	2,111	1,034	12.7	49.0	6.2	2,489,805	14.1	2,407.4	6.1
MACDOUG369	80	77	6.6	96.2	6.4	137,711	20.6	1,789.4	19.5
MARTIN404	25	2	124.9	8.3	10.3	0	0.0	0.0	0.0
MAULE M4	270	157	19.1	58.1	11.1	238,380	21.6	1,520.6	10.2
MAULE M5	436	342	11.5	78.5	9.0	334,595	16.0	978.1	11.2
MAULE M6	66	61	11.1	91.9	10.2	64,568	20.3	1,065.1	17.0
MAULE MX7	22	21	4.8	93.8	4.5	8,061	13.6	390.4	12.7
MCLISHFUNKB	147	61	16.9	41.6	7.0	117,781	19.4	1,924.3	9.5
MEYERSOTW	47	20	18.3	42.8	7.8	39,213	23.3	1,951.6	14.4
MILITARY204	210	161	20.5	76.5	15.7	1,046,775	28.7	6,516.9	20.1
MILITARY47	358	127	33.5	35.4	11.9	523,025	39.7	4,127.9	21.4
MNCOUP90	61	20	23.6	33.5	7.9	22,256	27.7	1,088.9	14.6
MNMITEM18	135	62	13.6	46.1	6.3	87,733	16.3	1,409.0	8.9
MODFD47	50	37	22.0	74.9	16.5	214,657	36.1	5,730.8	28.6

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
MOONEYM20	6,493	5,755	3.1	88.6	2.8	12,633,329	5.2	2,195.2	4.2
MOONEYM22	19	16	14.6	86.0	12.6	26,131	20.1	1,598.7	13.8
MRCHT1S205	44	25	27.1	57.8	15.7	34,257	27.7	1,348.1	5.7
MTSBSIM02	299	244	16.5	81.7	13.5	1,256,975	20.2	5,144.2	11.7
MTSBSIMU300	71	67	5.0	95.0	4.8	155,158	9.9	2,301.2	8.6
MULTECD16	38	24	19.9	62.9	12.6	53,029	24.2	2,217.2	13.6
NAMER B25	53	19	32.9	35.6	11.7	93,038	38.2	4,935.1	19.5
NAMER F51	144	89	10.8	61.6	6.7	194,027	17.6	2,188.5	13.8
NAMER NA260	201	95	18.0	47.2	8.5	630,785	27.3	6,644.0	20.5
NAMER T6	607	378	18.7	62.2	11.6	2,382,656	27.1	6,306.3	19.7
NATBAL752	35	37	0.0	106.8	0.0	8,106	33.5	216.8	33.5
NAVAL N3N	126	42	27.2	33.5	9.1	276,535	40.9	6,550.1	30.6
NAVIONNAVION	581	330	15.5	56.9	8.8	922,998	16.9	2,792.9	6.8
NORD 3202	24	13	30.2	52.5	15.9	15,158	30.9	1,202.5	6.1
NORD SV4	41	17	21.0	40.4	8.5	49,841	23.9	3,010.9	11.3
NORWST65	55	30	20.1	55.0	11.1	78,350	28.2	2,588.8	19.8
ORLHELH19	69	10	96.3	14.0	13.5	42,014	96.3	4,350.0	0.8
ORLHELSS8	31	0	0.0	0.0	0.0	0	0.0	0.0	0.0
OTHEXMILTURB	29	21	9.4	73.6	6.9	63,827	11.1	2,991.8	6.1
PARTENP68	34	37	0.0	107.5	0.0	57,696	17.3	1,578.6	17.3
PICARDAX6	135	45	31.5	33.1	10.4	17,925	36.4	401.6	18.2

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 14 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
PILATSB4	28	24	10.0	86.8	8.6	34,463	30.6	1,418.1	28.9
PIPER 600	355	309	10.2	87.1	8.9	565,162	15.9	1,826.8	12.2
PIPER J2	53	12	26.5	22.6	6.0	22,067	31.4	1,841.2	16.8
PIPER J3	4,309	2,285	7.6	53.0	4.0	7,256,998	12.3	3,175.6	9.7
PIPER J4	234	95	12.0	40.6	4.9	186,099	15.1	1,957.8	9.1
PIPER J5	319	164	9.0	51.4	4.6	400,698	14.4	2,444.3	11.2
PIPER PA12	1,349	782	9.7	58.0	5.6	2,118,705	12.3	2,709.2	7.6
PIPER PA14	104	60	10.5	58.1	6.1	187,668	13.8	3,103.9	9.0
PIPER PA15	177	65	27.8	36.7	10.2	145,205	30.3	2,237.5	12.3
PIPER PA16	363	159	18.7	43.7	8.2	391,493	36.4	2,468.8	31.2
PIPER PA17	102	41	26.4	40.0	10.5	76,838	27.4	1,885.1	7.6
PIPER PA18	3,610	2,170	9.9	60.1	6.0	6,303,581	15.6	2,905.3	12.0
PIPER PA20	441	292	12.2	66.2	8.1	712,521	14.3	2,442.0	7.5
PIPER PA22	4,681	2,862	7.2	61.2	4.4	7,742,414	8.0	2,706.8	3.6
PIPER PA23	3,216	2,572	7.1	80.0	5.6	10,321,539	9.2	4,013.0	6.0
PIPER PA24	3,074	2,601	4.9	84.6	4.2	8,537,373	6.5	3,281.9	4.3
PIPER PA25	1,052	903	9.9	85.8	8.5	3,381,682	13.5	3,746.2	9.2
PIPER PA28	21,423	18,500	1.9	86.4	1.6	53,683,992	3.1	2,891.3	2.4
PIPER PA30	1,229	995	7.4	81.0	6.0	3,518,223	9.0	3,535.8	5.1
PIPER PA31	1,602	1,556	4.2	97.1	4.1	6,233,988	14.0	4,003.2	13.3
PIPER PA31T	486	422	7.9	86.7	6.8	1,232,126	13.5	2,923.0	11.0



6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 15 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
PIPER PA32	4,142	3,650	3.6	88.1	3.2	9,912,661	6.0	2,716.2	4.7
PIPER PA34	1,698	1,808	0.0	106.5	0.0	5,384,659	6.5	2,978.2	6.5
PIPER PA36	288	255	9.4	88.6	8.3	645,121	15.3	2,529.0	12.0
PIPER PA38	1,111	784	11.0	70.5	7.7	2,120,620	14.9	2,705.6	10.1
PIPER PA42	88	81	7.8	91.8	7.1	229,282	9.7	2,838.1	5.8
PIPER PA44	290	250	9.6	86.3	8.3	760,424	18.8	3,037.7	16.1
PIPER PA46	280	263	5.8	93.8	5.4	321,842	9.8	1,224.8	7.8
PROPT200	68	39	18.8	57.4	10.8	68,412	19.9	1,752.3	6.5
RAVEN RX6	179	44	28.0	24.3	6.8	7,591	31.5	174.4	14.3
RAVEN S50	82	35	25.9	43.1	11.2	7,678	30.0	217.2	15.1
RAVEN S55	714	187	35.9	26.1	9.4	56,633	54.8	303.4	41.4
RAVEN S57	102	103	0.0	101.3	0.0	21,269	19.5	205.8	19.5
RAVEN S60	225	182	17.7	80.9	14.3	41,240	27.3	226.5	20.7
RAVEN S66	49	32	15.1	66.2	10.0	12,051	18.6	371.7	10.8
RKWE1500	27	29	0.0	107.5	0.0	108,900	15.0	3,752.0	15.0
RKWE1700	23	25	0.0	107.5	0.0	106,806	27.9	4,319.8	27.9
RKWE1NA265	250	237	5.2	95.0	5.0	1,510,432	10.2	6,362.0	8.7
ROBSINR22	633	462	16.1	72.9	11.7	574,358	26.3	1,244.5	20.8
ROLSCHLS	120	106	10.3	88.2	9.1	69,724	17.5	658.8	14.1
RYAN ST3	168	72	16.6	42.8	7.1	177,713	17.9	2,473.5	6.7
RYAN STA	32	2	176.0	7.1	12.4	7,896	176.0	3,490.0	0.0

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 16 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
SAAB SF340	27	15	52.7	54.6	28.7	26,532	70.5	1,800.7	46.9
SCHEMPDISCUS	45	47	0.0	103.4	0.0	24,139	15.3	518.9	15.3
SCHLERASK21	31	33	0.0	106.8	0.0	41,470	19.4	1,252.3	19.4
SCHLERASW15	32	27	10.5	83.6	8.8	33,055	14.3	1,235.6	9.7
SCHLERASW19	56	50	8.3	89.8	7.5	37,907	17.4	753.6	15.3
SCHLERASW20	80	85	0.0	106.8	0.0	72,322	10.4	846.3	10.4
SCHLERK8	24	10	37.8	40.1	15.2	12,575	48.4	1,308.0	30.2
SCHLERKA6	66	41	17.3	61.5	10.7	39,897	21.1	982.1	12.1
SCWZERG164	199	141	16.8	70.7	11.9	966,396	19.3	6,870.7	9.4
SCWZERSG1	734	413	12.4	56.3	7.0	430,534	16.4	1,042.4	10.7
SCWZERSG2	559	411	7.7	73.5	5.6	1,160,365	13.8	2,822.4	11.5
SEMO T	28	9	54.1	33.4	18.0	1,271	54.1	136.0	0.0
SKRSKYS55	33	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SKRSKYS58	69	24	55.2	35.0	19.3	146,385	57.9	6,062.5	17.6
SKRSKYS58T	39	21	54.3	52.9	28.7	295,174	55.9	14,304.4	13.1
SKRSKYS61	20	10	52.5	48.1	25.3	0	0.0	0.0	0.0
SKRSKYS76	163	74	44.8	45.7	20.4	141,189	49.2	1,896.6	20.3
SLINDS100	293	274	5.8	93.4	5.4	602,175	33.0	2,200.8	32.5
SMITH 600	338	270	11.7	80.0	9.4	594,905	14.7	2,201.4	8.9
SNALS350	99	95	7.9	96.2	7.6	602,258	48.1	6,323.6	47.5
SNIAS 350	162	129	18.4	79.3	14.6	179,078	28.7	1,393.5	22.1

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 17 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
SNIAS SA318	21	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SNIAS SA341	29	15	22.9	52.6	12.1	48,845	27.4	3,202.7	15.0
SOCATAMS894	37	30	14.1	80.4	11.4	25,433	18.1	854.5	11.4
SOCATARALLYE	20	17	13.3	85.3	11.3	12,911	14.5	756.6	5.8
SOCATATB10	69	38	32.2	54.7	17.6	28,070	35.1	744.1	14.0
SOCATATB20	145	110	11.8	75.9	8.9	77,193	14.9	701.6	9.1
SPHRTHCIRRUS	94	89	4.2	94.9	4.0	103,020	9.6	1,155.1	8.6
SPHRTHNIMBUS	47	41	9.5	88.1	8.4	49,657	13.5	1,199.5	9.6
SPHRTHVENTUS	42	45	0.0	106.8	0.0	39,253	19.0	874.9	19.0
STBROSSD3	31	13	91.9	40.9	37.6	508	91.9	40.0	0.0
STNSON10	148	18	35.4	11.8	4.2	27,537	38.8	1,571.6	15.7
STNSONJR	20	4	42.8	21.7	9.3	13,428	42.8	3,100.0	0.0
STNSONL5	127	55	12.3	43.3	5.3	103,976	15.3	1,888.8	9.1
STNSONSR9	23	3	58.4	14.8	8.6	8,231	60.7	2,415.0	16.7
STNSONV77	95	25	20.2	26.5	5.4	36,410	23.7	1,444.4	12.3
STOLAMRC3	227	59	37.3	26.2	9.8	72,297	42.5	1,215.6	20.2
SUPAC LA	91	4	151.1	4.1	6.1	5,086	154.1	1,378.3	30.3
SUPAC V	27	0	0.0	0.0	0.0	0	0.0	0.0	0.0
SWRNGNSA226	160	93	13.4	58.4	7.8	534,096	40.5	4,812.9	12.0
SWRNGNSA227	62	55	7.9	88.4	7.0	337,522	23.7	6,158.0	22.4
SWRNGNSA26	75	48	21.9	63.6	13.9	286,641	23.7	6,013.4	9.0

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

PAGE 18 OF 19

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
TCRAFKD	302	108	24.4	35.7	8.7	190,428	27.2	1,768.2	12.1
TCRAFTA	27	3	99.8	10.2	10.2	4,136	99.8	1,500.0	0.0
TCRAFTBC	1,850	1,117	11.8	60.4	7.1	2,675,329	15.8	2,395.3	10.5
TCRAFTBF	41	14	20.4	34.4	7.0	31,146	21.6	2,206.3	7.1
TCRAFTBL	221	74	20.0	33.5	6.7	212,355	22.6	2,866.3	10.3
TEMCO 11A	24	17	14.7	68.8	10.1	32,562	18.1	1,973.2	10.5
TH55	52	18	19.3	35.5	6.9	96,119	34.4	5,203.7	28.5
THUNDRAX7	86	92	0.0	106.8	0.0	20,299	24.1	221.0	24.1
TMP SONNAVION	621	346	23.7	55.7	13.2	949,249	25.2	2,744.0	8.7
TOMCAT	39	23	21.3	58.0	12.3	46,291	27.4	2,045.5	17.2
TRYTEK65	333	159	13.7	47.7	6.6	483,937	23.1	3,048.5	18.5
TRYTEKK	25	7	46.3	27.0	12.5	11,820	48.9	1,749.0	15.8
UNIVACGC1	671	386	11.6	57.6	6.7	701,722	13.7	1,816.0	7.3
UNIVAR108	2,013	867	13.4	43.1	5.7	1,779,554	16.2	2,053.0	9.1
UNIVAR415	2,398	1,388	11.2	57.9	6.5	2,384,306	13.6	1,718.3	7.6
VALENT17	21	22	0.0	106.8	0.0	7,210	19.0	321.4	19.0
VARGA 2150	129	114	10.7	88.3	9.5	192,275	18.2	1,688.5	14.7
WACO ASO	29	5	49.8	17.2	8.6	17,238	49.8	3,449.1	2.8
WACO GXE	35	7	33.9	19.7	6.7	11,857	39.4	1,720.0	20.1
WACO R	31	11	26.4	36.8	9.7	20,439	27.3	1,793.3	6.9
WACO UPF7	156	64	8.7	41.2	3.6	232,329	9.6	3,610.9	4.2

6.2 1991 GENERAL AVIATION TOTAL AND AVERAGE AIRFRAME HOURS PER ACTIVE AIRCRAFT  
BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP

MANUFACTURER/ MODEL GROUP	AIRCRAFT POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL AIRFRAME HOURS	PERCENT STANDARD ERROR	ESTIMATE AVERAGE AIRFRAME HOURS	PERCENT STANDARD ERROR
WACO YK	49	13	29.4	26.6	7.8	68,942	30.7	5,287.5	8.9
WSK M18	32	23	14.2	70.4	10.0	35,663	15.9	1,583.6	7.1
WTHRLY201	62	57	9.4	91.9	8.7	176,026	11.4	3,088.9	6.4
TOTAL	265,041	198,475	0.6	74.9	0.5	590,109,824	1.3	2,892.6	1.1

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

6.3 1991 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

PAGE 1 OF 7

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
OTHER	32,550	1.6	78.7	181	3.8
ALLSN 250C	1,249	6.1	87.3	712	14.5
ALLSN 501D	110	11.8	90.0	261	11.7
AMTR 430	77	52.3	46.8	34	29.0
AMTR AMTR	19,619	2.9	60.3	233	4.6
AMTRMCHCCULH	86	33.5	21.3	33	36.2
ARSRCHEPE331	239	14.8	58.6	203	14.0
CONT 6285	101	14.8	90.7	277	15.0
CONT 975	22	29.0	91.9	183	9.8
CONT A40	12	135.9	9.8	14	33.3
CONT A50	12	62.6	31.7	15	14.1
CONT A65	5,197	5.3	53.2	41	10.4
CONT A75	1,270	10.1	61.0	38	16.7
CONT A80	4	249.8	4.6	64	9.7
CONT C125	206	15.9	54.5	43	24.0
CONT C145	1,702	6.2	75.1	65	10.3
CONT C85	3,385	6.5	55.4	46	10.1
CONT C90	1,371	11.1	53.1	40	16.5

6.3 1991 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
CONT E185	1,143	13.2	57.5	75	14.2
CONT E225	1,252	7.9	84.9	69	15.6
CONT O200	10,840	3.7	76.1	107	11.6
CONT O300	7,336	3.2	84.8	80	7.2
CONT O346	271	10.8	93.8	137	29.9
CONT O360	2,635	6.3	80.7	144	14.4
CONT O470	13,124	2.5	81.4	111	5.9
CONT O520	22,710	1.5	87.9	174	3.7
CONT R670	80	33.7	44.2	15	41.2
DHAWXGIPSY	71	12.3	67.1	30	11.8
FCD 6440	132	18.2	37.0	40	22.8
FRNKLN4AC150	3	221.1	10.3	56	37.7
FRNKLN4AC176	77	27.3	43.5	45	18.4
FRNKLN4AC199	48	44.4	31.9	13	54.2
FRNKLN6A4150	329	21.1	32.8	39	21.3
FRNKLN6A4165	560	15.5	50.2	62	17.6
FRNKLN6A4200	0	0.0	0.0	0	0.0
FRNKLN6A8215	54	40.0	26.5	52	21.6

6.3 1991 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SOR MANUFACTURER/MODEL GROUP

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
FRNKLN6AV335	80	38.6	50.0	39	53.9
FRNKLN6AV350	183	12.7	80.3	77	36.1
FRNKLN6V4	44	56.1	25.4	138	46.4
GARRTTATF3	32	8.9	95.0	204	15.9
GARRTTTTE731	436	5.3	90.8	385	9.6
GARRTTTTE331	1,304	5.7	75.8	357	11.2
GE CF34	125	5.9	95.0	291	15.2
GE CF700	292	5.4	93.8	242	21.3
GE CJ610	656	4.9	92.4	186	17.7
GE CT58	39	24.2	62.7	1,296	21.0
GE CT7TP	0	0.0	0.0	0	0.0
GE TC7TS	0	0.0	0.0	0	0.0
GLADENB5	31	30.1	40.4	76	20.6
GLADENK5	7	89.5	15.4	9	8.4
GLADENR5	75	15.8	40.3	29	17.5
JACOBPR755	262	22.3	58.8	46	33.5
JACOBSR755	73	36.0	20.9	57	31.3
JACOBSR915	55	26.5	72.0	42	4.7



6.3 1991 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

PAGE 4 OF 7

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
LIMBAH1700	25	0.0	106.8	16	71.0
LYC 0540	6,659	3.2	86.1	125	7.3
LYC ALF502	72	10.2	95.0	275	13.3
LYC LTS101	217	7.7	84.4	548	8.2
LYC O145	366	13.8	46.2	39	13.4
LYC O235	8,379	3.7	75.2	296	9.4
LYC O290	2,011	8.9	61.2	58	13.7
LYC O320	32,203	1.7	81.5	156	5.4
LYC O340	50	46.5	38.4	44	41.2
LYC O360	21,352	1.7	87.9	137	5.0
LYC O435	51	49.2	33.1	133	21.6
LYC O480	900	6.9	67.9	82	10.6
LYC O540	9,071	2.5	87.6	162	6.5
LYC O541	861	6.9	81.1	141	11.2
LYC O720	162	21.2	71.2	126	34.1
LYC R680	100	23.8	55.8	32	15.1
MWASCOC4	6	60.7	26.3	9	7.3
ONAN 18HP	1	703.0	1.0	1	106.6

6.3 1991 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
PKARDV1650	64	13.0	65.7	47	21.9
PWA JT12	224	10.8	78.5	161	12.1
PWA JT15	1,092	3.6	94.3	288	10.0
PWA JT3C	14	69.1	66.6	71	66.8
PWA JT3D	37	18.7	66.6	259	43.4
PWA JT8	174	19.1	71.3	135	58.2
PWA JT9	0	0.0	0.0	0	0.0
PWA PT6	3,899	3.5	85.1	280	6.9
PWA PT6T	91	5.1	94.4	418	6.1
PWA PW121	0	0.0	0.0	0	0.0
PWA R1340	1,781	6.3	76.9	319	6.8
PWA R1830	327	20.6	63.1	93	43.7
PWA R2000	88	13.5	46.1	31	33.3
PWA R2800	211	32.4	40.9	56	25.8
PWA R985	1,801	8.9	52.5	182	12.4
ROTAX 277	0	0.0	0.0	0	0.0
RROYCEDART	170	21.1	54.6	263	33.6
RROYCEGPSY	41	24.1	69.0	4	18.0

6.3 1991 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDR MANUFACTURER/MODEL GROUP

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
PROYCESPEY	473	5.6	95.0	354	13.2
PROYCEVIPER	134	5.2	95.0	173	13.6
TMECA ABRIEL	190	5.3	96.2	410	27.8
TMECA ARTIST3	59	19.5	92.0	693	49.1
TMECA BASTAN	0	0.0	0.0	0	0.0
TMECA MARBOR	65	17.0	83.0	42	13.2
WARNER165	46	25.0	35.0	26	22.5
WARNER185	10	67.7	34.0	18	10.3
WARNER50	40	38.5	24.5	37	15.7
WRIGHTJ5	0	0.0	0.0	0	0.0
WRIGHTOX5	6	213.3	7.2	10	22.8
WRIGHTR1300	16	25.5	34.0	33	37.6
WRIGHTR1820	196	8.6	81.1	78	37.3
WRIGHTR2600	35	11.1	72.2	46	16.6
WRIGHTR3350	0	0.0	0.0	0	0.0
WRIGHTR760	15	99.9	14.9	105	76.9
WRIGHTR975	56	33.4	72.6	20	16.6
WSK P2L	15	26.9	69.5	330	32.2

6.3 1991 NUMBER OF ENGINES ON ACTIVE GENERAL AVIATION AIRCRAFT AND AVERAGE HOURS PER ENGINE  
BY ENGINE SDA MANUFACTURER/MODEL GROUP

ENGINE MANUFACTURER/ MODEL GROUP	ESTIMATE OF ACTIVE ENGINES	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF AVERAGE HOURS	PERCENT STANDARD ERROR
XENOAHG72	0	0.0	0.0	0	0.0
ALL ENGINES	224,536	0.6	75.6	160	1.59

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

ENGINE MANUFACTURER/MODEL GROUPS FOR WHICH SEPARATE ESTIMATES ARE NOT AVAILABLE ARE NOT LISTED IN THE TABLE, BUT ARE INCLUDED IN THE "ALL ENGINES" ESTIMATES.

FOR ADDITIONAL INFORMATION, SEE APPENDIX C FOR SDR ENGINE GROUP NAMES AND FAA MANUFACTURER/MODEL CODES.

## CHAPTER VII

### AVIONICS

A major purpose of the GAAA Survey is to determine the avionics equipment capabilities of the general aviation fleet. This chapter presents the Survey's findings with 21 tables of statistics and one figure. Figure 7.1, Avionics Equipment in the 1991 General Aviation Aircraft Fleet, graphically depicts the percentages of the general aviation fleet using the types of avionics equipment represented in Tables 7.1, 7.5, 7.9, 7.13 and 7.17.

The avionics are divided into five groups of equipment: 1) VHF communications, 2) precision approach equipment and transponder equipment, 3) navigation equipment, 4) guidance and control equipment, and 5) electrical system and/or emergency locator transmitter equipment. Statistics on each of these groups of avionics equipment are further divided into four categories:

- 1) Aircraft Type--Tables 7.1, 7.5, 7.9, 7.13, and 7.17;
- 2) Primary Use--Tables 7.2, 7.6, 7.10, 7.14, and 7.18;
- 3) Region of Based Aircraft--Tables 7.3, 7.7, 7.11, 7.15, and 7.19; and
- 4) State of Based Aircraft--Tables 7.4, 7.8, 7.12, 7.16, and 7.20.

Tables 7.1-7.4 contain survey results for the first group of equipment, VHF communications equipment. Included in this category are 360 and 720 channels radios, HF radios, more than one communications system, and cockpit voice recorders.

The second group of avionics equipment, precision approach equipment and transponder equipment, is presented in Tables 7.5-7.8. Precision approach equipment consists of localizers, marker beacons, glide slopes, and a microwave landing system (MLS). Although data on MLS were collected, they were not sufficient to provide reasonable estimates. Data on transponder equipment capability within the general aviation fleet were collected for Mode A, Mode C, and Mode S transponders, as well as Traffic Alert and Collision Avoidance Systems (TCAS I and TCAS II). Although data on MLS and TCAS I and TCAS II were collected, they are not included in this report because the data collected were not sufficient to provide reasonable estimates.

The third group of avionics equipment, shown in Tables 7.9-7.12, is navigation equipment. This group can be divided into three subcategories, basic navigation equipment, long range navigation equipment, and other navigation equipment. Basic navigation equipment consists of: Very high frequency Omnidirectional Radio ranges (VOR) with 100 channels, 200 channels, or two or more VOR; Automatic Direction Finder (ADF); Distance Measuring Equipment (DME); and Area Navigation (RNAV).

Long range navigation consists of: the Loran-C, which can be flown by Visual Flight Rules (VFR); Navigation Instrument Flight Rules (NAV IFR); Approach

Instrument Flight Rules (APP IFR); the Omega - VLF; or some other type of long range navigation equipment (Doppler, INS, Other). The "other" navigation equipment category consists of radar altimeter, weather radar, thunderstorm detection equipment, and two pieces of navigation equipment new to this year's Survey, ground proximity warning system (GPWS) and global positioning system (GPS).

Tables 7.13-7.16 constitute the fourth group of avionics equipment, Guidance and Control Equipment. This equipment category includes flight directors, Electronic Flight Information Systems (EFIS), flight management systems, autopilot-axis controls (longitude, vertical, lateral and approach mode), autolands, and flight data recorders.

Tables 7.17-7.20 constitute the fifth and last group of avionics equipment, Electrical System and/or Emergency Locator Transmitter (ELT) Equipment. Respondents were asked to indicate whether or not their aircraft was equipped with an electrical system and whether or not their aircraft had an ELT.

The last table in this chapter, Table 7.21, shows the estimated number of aircraft and total hours flown IFR--with and without--transponder equipment.

Some observations to be made from these tables are:

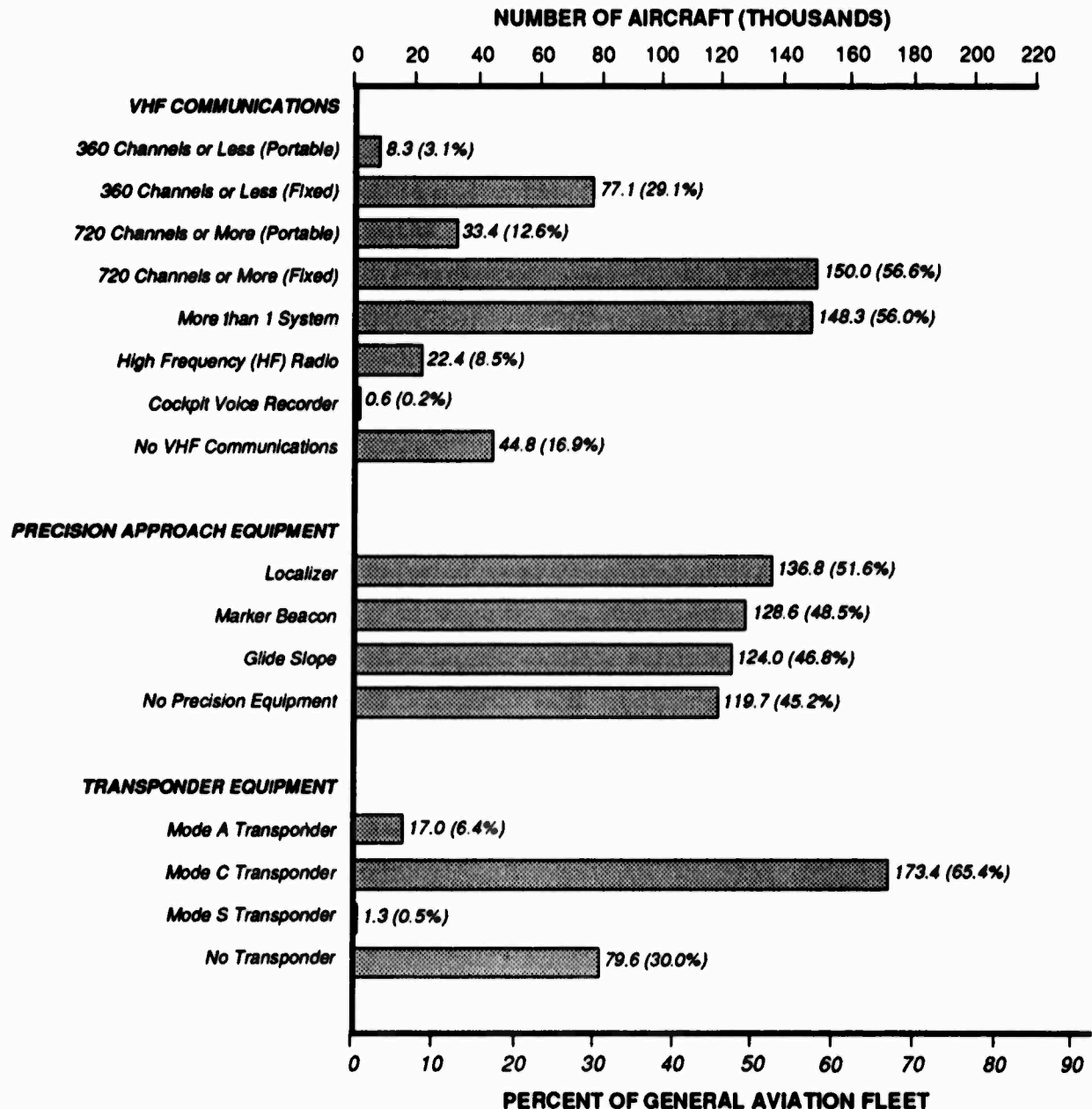
- o The avionics equipment capability of the general aviation fleet continues to become increasingly more sophisticated. In 1991, nearly 57 percent of the general aviation fleet had fixed 720 channel communication equipment, and 56 percent of the 1991 general aviation fleet had more than one communications system. Only 17 percent of the general aviation fleet was without any type of VHS communications equipment.
- o The majority of the general aviation fleet (55 percent) had some type of precision approach equipment. Estimates are fairly evenly divided among the localizer, marker beacon, and glide slope categories. One engine piston aircraft with 1-3 seats and "other aircraft" types tended to have less precision approach equipment than larger aircraft types, such as two engine pistons, turboprops, and turbojets.
- o The most common type of precision approach equipment in the 1991 general aviation fleet was the localizer; 51.6 percent of the general aviation fleet had this capability. The marker beacon was second (48.5 percent), and the glide slope was a close third (46.8 percent).
- o Aircraft used primarily for business or commuter air carrier purposes, such as executive/corporate, business, air taxi, and commuter air carrier categories, had the highest estimates of the population with precision approach equipment. Aircraft in other use categories, such as personal, instructional, aerial application, and aerial observation, had less precision approach equipment.

- o All of the regions, with the exception of the Alaskan region, had relatively similar estimates of the percent of the general aviation aircraft population with precision approach equipment. These percentages ranged from 41.5 percent to 57.6 percent. The Alaskan region had the lowest aircraft population with precision approach equipment, an estimated 32.7 percent.
- o In order to capture precise data on collision avoidance equipment, data on Mode A, Mode C, and Mode S transponder equipment, MLS, and TCAS I and TCAS II were collected separately. However, data on MLS, TCAS I, and TCAS II are not included in this year's report because the data collected were not sufficient to provide reasonable estimates.
- o Overall, 70 percent of the 1991 general aviation aircraft fleet had transponder equipment, relatively unchanged from 1990's estimate of 69.9 percent.
- o The most popular type of transponder equipment was Mode C. More than 65 percent of the general aviation aircraft fleet had this capability in 1991, up 4 percent from 1990's estimate.
- o In 1991, more than 90 percent of turboprop, turbojet, single engine piston (4+ seats), and multiengine piston aircraft types had some kind of navigation equipment, but more than 92 percent of "other aircraft," 72 percent of piston rotorcraft, and 42 percent of single engine, 1-3 seats piston aircraft had no navigation equipment at all.
- o The three most popular types of basic navigation equipment in the 1991 general aviation fleet were: more than one VOR receiver (140,646 equipped aircraft); the 200 channel fixed VOR (133,385 equipped aircraft); and the ADF (126,024 equipped aircraft).
- o The percent of the general aviation fleet with long range navigation equipment changed only very slightly from 1990 to 1991 with the exceptions of aircraft with Loran C and VFR only capabilities. Aircraft with Loran C capability continue to increase, from 31.2 percent in 1989, to 42.8 percent in 1990, to 45.3 percent in 1991. Aircraft with Loran "VFR only" capability increased 11 percent, from 30.5 percent in 1990 to 33.8 percent in 1991.
- o Aircraft with Omega capability increased from 1.1 percent in 1990 to 1.3 percent in 1991. The other LRNAV category remained the same at 0.7 percent.
- o In the other navigation equipment category, the most popular equipment was weather radar, with 8.6 percent of the general aviation fleet having this capability. Two types of other navigation equipment new to the Survey this year, GPWS and GPS, rated 1.5 percent and 1.2 percent, respectively.

- o Only 30.8 percent of the 1991 general aviation fleet had guidance and control equipment.
- o Turbojets and turboprops had the greatest percent of aircraft with guidance and control equipment, 93 percent and 80 percent, respectively. In contrast, only 6.5 percent of rotorcraft were equipped with guidance and control equipment.
- o The most popular guidance and control equipment were autopilot-axis controls, particularly longitude (27.2 percent) and lateral (22.7 percent).
- o Nearly 83 percent of the general aviation fleet had an electrical system. One engine piston, 1-3 seats; "other" piston; piston rotorcraft; and "other" aircraft had the lowest percent of aircraft with an electrical system: 67.9, 64.7, 68.7, and 14.3 percent, respectively.
- o The estimated 1991 general aviation population with ELT capabilities was 79.6 percent, up slightly from 1990's estimated 78.7 percent.
- o In 1991, more than 81,000 aircraft (41 percent of active aircraft) were flown IFR, flying 7.3 million hours. This number represents a 10 percent decrease from the number of aircraft flown IFR in 1990, when more than 90,000 aircraft were flown IFR. Of those aircraft flown IFR in 1991, 59 percent had a transponder.



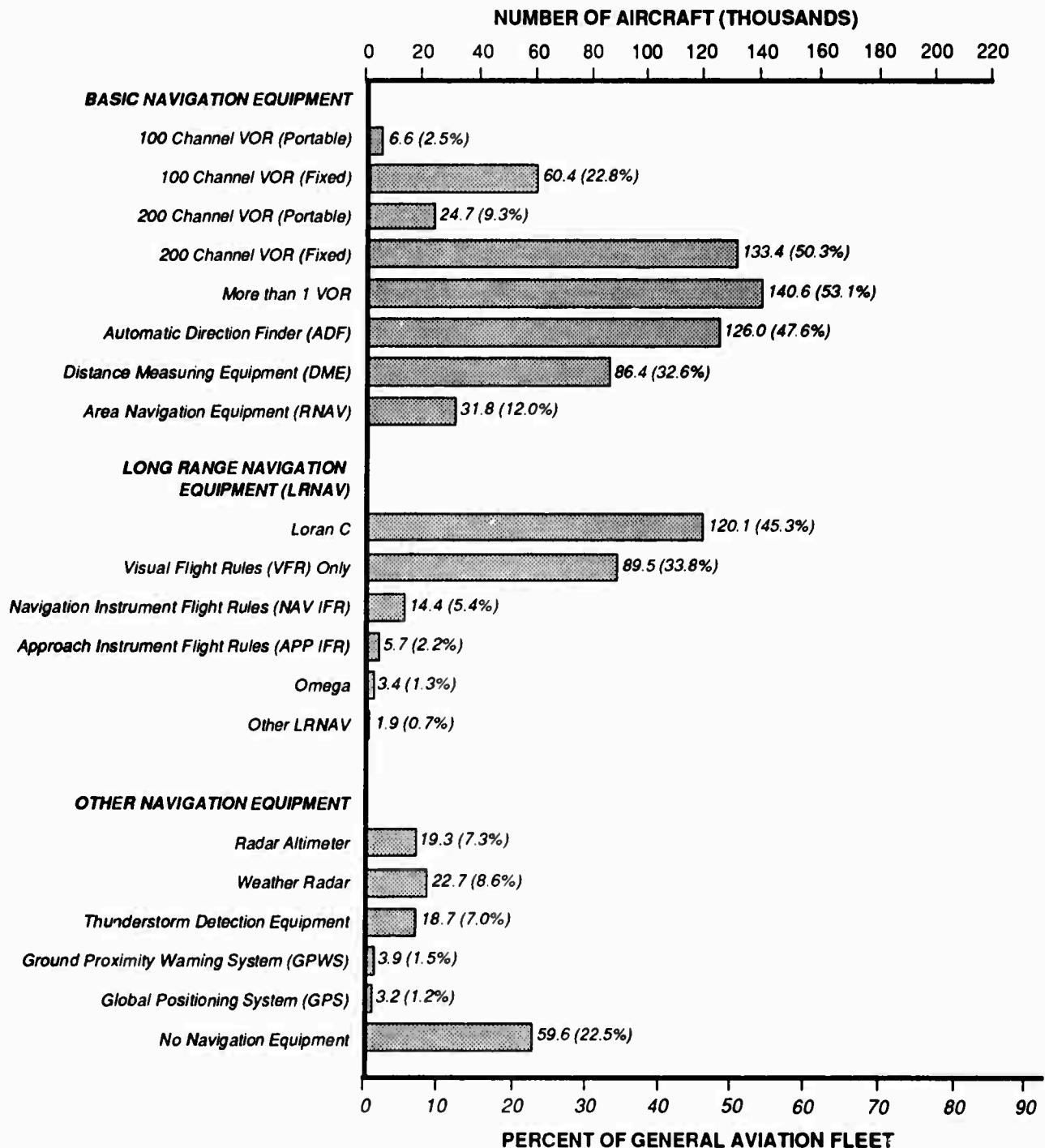
**Figure 7.1**  
**AVIONICS EQUIPMENT IN THE**  
**1991 GENERAL AVIATION AIRCRAFT FLEET**



**NOTE:** Data on Microwave Landing Systems (MLS) and Traffic Alert and Collision Avoidance System (TCAS) I and TCAS II were collected but are not included because the data collected were not sufficient to provide reasonable estimates.

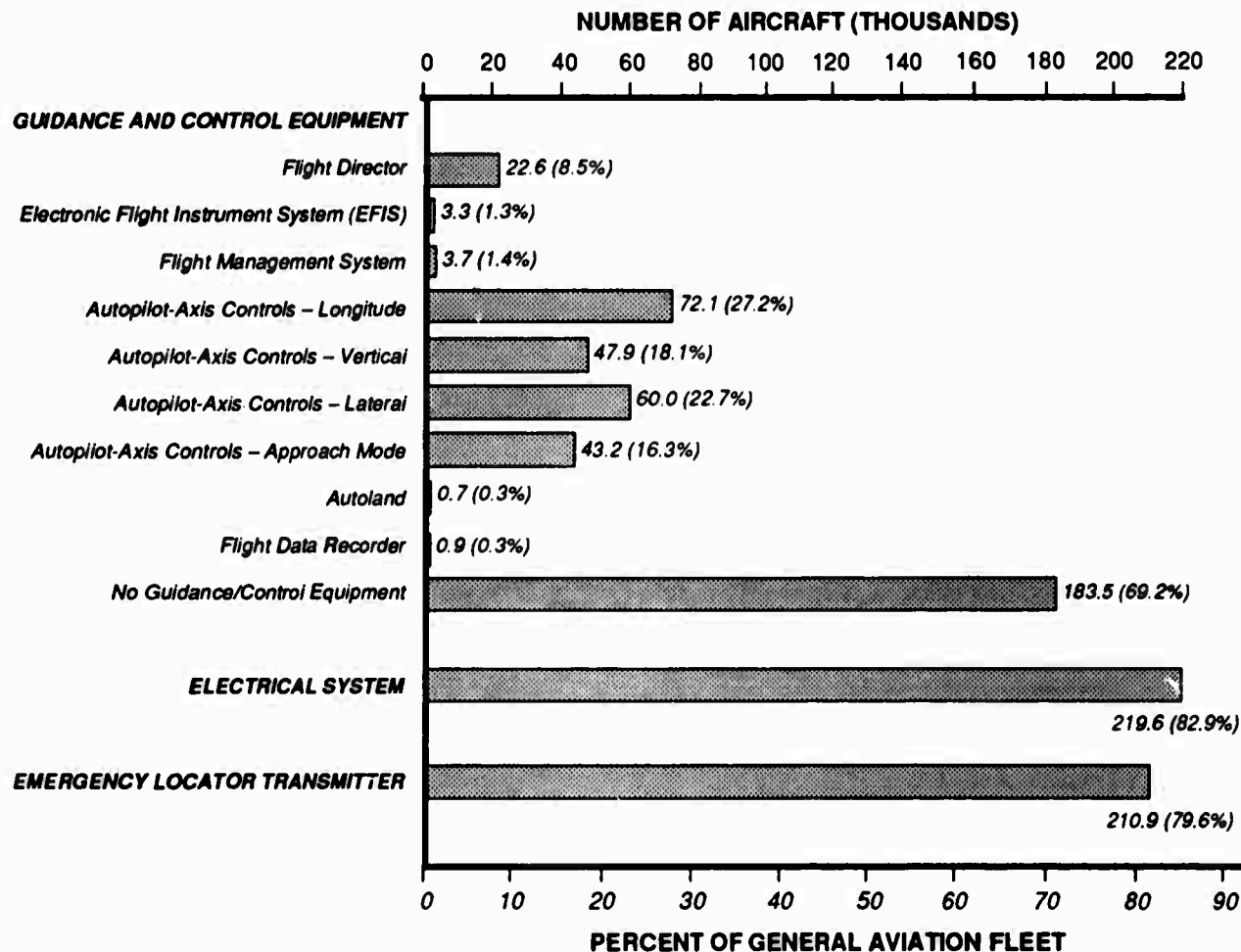
**SOURCE:** Tables 7.1 and 7.5

**Figure 7.1 (continued)**  
**AVIONICS EQUIPMENT IN THE**  
**1991 GENERAL AVIATION AIRCRAFT FLEET**



**SOURCE: Table 7.9**

**Figure 7.1 (continued)**  
**AVIONICS EQUIPMENT IN THE**  
**1991 GENERAL AVIATION AIRCRAFT FLEET**



**SOURCE: Tables 7.13 and 7.17**

7.1 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 1 OF 3

VHF COMMUNICATIONS

AIRCRAFT TYPE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
<b>FIXED WING</b>								
<b>FIXED WING - PISTON</b>								
1 ENG: 1-3 SEATS								
ESTIMATED POPULATION	2,926	23,342	12,569	28,930	18,847	4,947	33	28,689
% STANDARD ERROR	11.7	3.6	5.3	3.0	4.1	9.3	85.7	2.6
% WITH CAPABILITY	3.3	26.4	14.2	32.8	21.3	5.6	0.0	32.5
1 ENG: 4+ SEATS								
ESTIMATED POPULATION	3,105	42,767	14,276	84,850	92,090	10,512	304	4,999
% STANDARD ERROR	12.2	2.6	5.2	1.2	0.9	6.2	38.8	8.0
% WITH CAPABILITY	2.6	36.2	12.1	71.9	78.0	8.9	0.3	4.2
1 ENGINE: TOTAL								
ESTIMATED POPULATION	6,031	66,109	26,845	113,780	110,938	15,459	338	33,688
% STANDARD ERROR	8.5	2.1	3.7	1.2	1.0	5.2	36.0	2.5
% WITH CAPABILITY	2.9	32.0	13.0	55.1	53.8	7.5	0.2	16.3
2 ENG: 1-6 SEATS								
ESTIMATED POPULATION	810	5,188	1,887	13,365	15,240	1,714	81	786
% STANDARD ERROR	20.7	7.5	13.5	2.6	1.7	14.8	65.9	21.8
% WITH CAPABILITY	4.7	29.9	10.9	77.0	87.8	9.9	0.5	4.5
2 ENG: 7+ SEATS								
ESTIMATED POPULATION	352	1,861	719	6,519	6,746	802	93	801
% STANDARD ERROR	31.9	11.8	22.7	3.1	2.9	19.2	57.2	17.0
% WITH CAPABILITY	4.2	22.0	8.5	77.0	79.7	9.5	1.1	9.5
2 ENGINE: TOTAL								
ESTIMATED POPULATION	1,162	7,049	2,607	19,884	21,986	2,516	174	1,587
% STANDARD ERROR	17.3	6.4	11.6	2.0	1.5	11.8	43.3	13.8
% WITH CAPABILITY	4.5	27.3	10.1	77.0	85.1	9.7	0.7	6.1
<b>PISTON: OTHER</b>								
ESTIMATED POPULATION	5	31	0	130	92	16	0	129
% STANDARD ERROR	243.6	51.3	0.0	22.0	19.6	80.8	0.0	21.3
% WITH CAPABILITY	1.7	11.3	0.0	47.9	33.9	5.9	0.0	47.4
<b>PISTON: TOTAL</b>								
ESTIMATED POPULATION	7,198	73,189	29,452	133,794	133,016	17,991	512	35,404
% STANDARD ERROR	7.6	2.0	3.6	1.0	0.9	4.7	27.9	2.5
% WITH CAPABILITY	3.1	31.5	12.7	57.6	57.2	7.7	0.2	15.2

7.1 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 2 OF 3

VHF COMMUNICATIONS

AIRCRAFT TYPE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
FIXED WING - TURBOPROP								
2 ENG: 1-12 SEATS								
ESTIMATED POPULATION	67	646	348	3,863	4,041	261	11	270
% STANDARD ERROR	55.1	16.2	25.3	2.8	2.3	26.2	75.8	27.4
% WITH CAPABILITY	1.5	14.4	7.8	86.2	90.2	5.8	0.2	6.0
2 ENG: 13+ SEATS								
ESTIMATED POPULATION	3	66	27	1,153	1,195	165	0	17
% STANDARD ERROR	133.1	32.1	88.7	2.6	2.0	22.5	0.0	79.9
% WITH CAPABILITY	0.2	5.2	2.2	92.0	95.3	13.1	0.0	1.3
2 ENGINE: TOTAL								
ESTIMATED POPULATION	70	712	375	5,016	5,236	426	11	286
% STANDARD ERROR	53.0	15.0	24.3	2.2	1.8	18.3	75.8	26.2
% WITH CAPABILITY	1.2	12.4	6.5	87.5	91.3	7.4	0.2	5.0
TURBOPROP: OTHER								
ESTIMATED POPULATION	0	17	19	385	334	78	6	120
% STANDARD ERROR	0.0	68.0	98.5	8.6	10.6	53.9	100.8	26.6
% WITH CAPABILITY	0.0	3.1	3.5	70.8	61.3	14.4	1.2	22.1
TURBOPROP: TOTAL								
ESTIMATED POPULATION	70	729	394	5,402	5,569	504	17	407
% STANDARD ERROR	53.0	14.8	23.6	2.2	1.8	17.6	60.6	20.1
% WITH CAPABILITY	1.1	11.6	6.3	86.0	88.7	8.0	0.3	6.5
FIXED WING - TURBOJET								
2 ENGINE TURBOJET								
ESTIMATED POPULATION	106	582	374	4,010	4,061	2,122	28	104
% STANDARD ERROR	47.5	16.8	22.9	2.1	1.8	5.3	56.8	46.3
% WITH CAPABILITY	2.4	13.3	8.5	91.5	92.7	48.4	0.6	2.4
TURBOJET: OTHER								
ESTIMATED POPULATION	12	73	11	491	482	400	0	91
% STANDARD ERROR	77.8	28.4	79.2	5.2	5.4	6.9	0.0	22.4
% WITH CAPABILITY	1.8	11.5	1.7	76.9	75.6	62.7	0.0	14.3
TURBOJET: TOTAL								
ESTIMATED POPULATION	118	655	385	4,501	4,543	2,522	28	195
% STANDARD ERROR	43.4	15.3	22.4	2.0	1.7	4.6	56.8	26.8
% WITH CAPABILITY	2.4	13.1	7.7	89.6	90.5	50.2	0.5	3.9

7.1 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	VHF COMMUNICATIONS							
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
FIXED WING: TOTAL								
ESTIMATED POPULATION	7,386	74,573	30,231	143,697	143,128	21,016	556	36,005
% STANDARD ERROR	7.5	2.0	3.5	1.0	0.8	4.1	25.9	2.5
% WITH CAPABILITY	3.0	30.6	12.4	58.9	58.7	8.6	0.2	14.8
ROTORCRAFT								
PISTON								
ESTIMATED POPULATION	164	971	475	1,980	704	203	9	2,530
% STANDARD ERROR	41.7	14.8	22.3	9.2	17.5	30.9	156.1	6.5
% WITH CAPABILITY	2.8	16.6	8.1	33.9	12.0	3.5	0.2	43.3
TURBINE								
ESTIMATED POPULATION	0	888	48	3,357	3,282	673	2	469
% STANDARD ERROR	0.0	15.4	75.1	4.7	4.5	19.8	108.2	21.4
% WITH CAPABILITY	0.0	19.2	1.0	72.6	70.9	14.5	0.0	10.1
ROTORCRAFT: TOTAL								
ESTIMATED POPULATION	164	1,860	522	5,337	3,985	876	11	2,999
% STANDARD ERROR	41.7	10.7	21.4	4.5	4.9	16.8	129.2	6.5
% WITH CAPABILITY	1.6	17.8	5.0	51.0	38.1	8.4	0.1	28.6
OTHER AIRCRAFT								
ESTIMATED POPULATION	787	644	2,639	970	1,173	530	0	5,783
% STANDARD ERROR	17.8	12.3	8.4	11.6	13.8	21.9	0.0	4.2
% WITH CAPABILITY	7.3	6.0	24.5	9.0	10.9	4.9	0.0	53.6
TOTAL								
ESTIMATED POPULATION	8,337	77,076	33,392	150,004	148,286	22,421	567	44,787
% STANDARD ERROR	6.9	1.9	3.3	0.9	0.8	3.9	25.5	2.1
% WITH CAPABILITY	3.1	29.1	12.6	56.6	56.0	8.5	0.2	16.9

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.2 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY PRIMARY USE

PAGE 1 OF 2

VHF COMMUNICATIONS

PRIMARY USE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
EXECUTIVE								
ESTIMATED POPULATION	189	1,852	1,141	9,633	10,130	2,728	92	113
% STANDARD ERROR	40.0	13.0	15.9	4.3	4.2	7.2	58.7	51.8
% WITH CAPABILITY	1.7	17.2	10.6	89.2	93.8	25.3	0.9	1.0
BUSINESS								
ESTIMATED POPULATION	1,773	11,808	4,208	25,709	28,909	3,145	113	683
% STANDARD ERROR	15.3	5.8	9.9	3.6	3.3	11.1	56.7	24.1
% WITH CAPABILITY	5.2	34.9	12.4	76.0	85.4	9.3	0.3	2.0
PERSONAL								
ESTIMATED POPULATION	4,600	41,234	20,910	74,589	75,474	10,708	288	10,253
% STANDARD ERROR	9.4	2.8	4.1	1.8	1.7	6.2	39.3	5.1
% WITH CAPABILITY	3.7	33.5	17.0	60.6	61.3	8.7	0.2	8.3
INSTRUCTIONAL								
ESTIMATED POPULATION	304	5,789	1,163	13,618	9,602	1,320	0	791
% STANDARD ERROR	37.3	9.2	19.4	5.6	6.9	19.4	0.0	17.8
% WITH CAPABILITY	1.6	29.9	6.0	70.3	49.6	6.8	0.0	4.1
AERIAL APPLICATION								
ESTIMATED POPULATION	57	850	341	1,811	1,308	402	5	4,742
% STANDARD ERROR	67.8	20.3	30.5	13.5	15.8	28.8	100.8	4.7
% WITH CAPABILITY	0.7	11.2	4.5	23.8	17.2	5.3	0.1	62.3
AERIAL OBSERVATION								
ESTIMATED POPULATION	120	1,446	415	3,640	3,543	693	0	316
% STANDARD ERROR	57.5	17.3	29.3	10.3	10.6	23.6	0.0	33.3
% WITH CAPABILITY	2.2	26.8	7.7	67.5	65.7	12.9	0.0	5.9
OTHER WORK USE								
ESTIMATED POPULATION	9	521	330	961	666	122	0	160
% STANDARD ERROR	140.0	27.9	26.3	17.3	19.2	36.3	0.0	47.4
% WITH CAPABILITY	0.5	29.6	18.7	54.5	37.8	6.9	0.0	9.1
COMPUTER AIR CARRIER								
ESTIMATED POPULATION	0	180	43	714	858	122	0	0
% STANDARD ERROR	0.0	31.6	78.6	15.4	14.1	47.0	0.0	0.0
% WITH CAPABILITY	0.0	19.5	4.7	77.3	92.9	13.2	0.0	0.0

7.2 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY PRIMARY USE

PAGE 2 OF 2

VHF COMMUNICATIONS									
PRIMARY USE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF	
AIR TAXI									
ESTIMATED POPULATION	93	950	359	5,031	4,702	378	2	55	
& STANDARD ERROR	66.6	18.5	37.4	7.4	7.7	25.9	108.2	76.5	
& WITH CAPABILITY	1.6	16.5	6.3	87.7	81.9	6.6	0.0	1.0	
OTHER									
ESTIMATED POPULATION	74	1,025	597	2,626	2,582	721	4	462	
& STANDARD ERROR	53.4	18.3	24.9	10.4	10.5	22.4	205.6	24.7	
& WITH CAPABILITY	1.8	24.5	14.3	62.7	61.7	17.2	0.1	11.0	
INACTIVE									
ESTIMATED POPULATION	1,074	11,289	3,617	11,175	10,154	1,948	62	27,900	
& STANDARD ERROR	18.1	4.7	10.1	4.8	4.7	12.8	59.0	2.2	
& WITH CAPABILITY	2.1	21.6	6.9	21.4	19.4	3.7	0.1	53.4	
TOTAL									
ESTIMATED POPULATION	8,337	77,076	33,392	150,004	148,286	22,421	567	44,787	
& STANDARD ERROR	6.9	1.9	3.3	0.9	0.8	3.9	25.5	2.1	
& WITH CAPABILITY	3.1	29.1	12.6	56.6	56.0	8.5	0.2	16.9	

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.3 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

VHF COMMUNICATIONS

REGION	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
<b>ALASKAN</b>								
ESTIMATED POPULATION	323	3,354	1,317	4,559	3,946	1,060	2	1,098
% STANDARD ERROR	35.6	10.5	16.4	8.6	9.4	19.2	106.1	17.6
% WITH CAPABILITY	3.5	36.0	14.1	48.9	42.3	11.4	0.0	11.8
<b>CENTRAL</b>								
ESTIMATED POPULATION	474	5,146	1,322	7,473	7,966	1,468	3	3,426
% STANDARD ERROR	30.7	9.4	17.7	7.5	7.3	16.5	294.8	9.9
% WITH CAPABILITY	3.1	33.4	8.6	48.6	51.8	9.5	0.0	22.3
<b>EASTERN</b>								
ESTIMATED POPULATION	1,010	8,244	4,347	16,971	16,866	2,615	19	5,747
% STANDARD ERROR	19.9	7.2	9.7	4.8	4.8	11.5	108.0	7.6
% WITH CAPABILITY	3.4	27.5	14.5	56.7	56.3	8.7	0.1	19.2
<b>GREAT LAKES</b>								
ESTIMATED POPULATION	1,416	12,950	6,688	25,392	24,632	3,867	94	8,354
% STANDARD ERROR	17.2	5.7	7.8	3.9	3.9	10.0	62.9	6.1
% WITH CAPABILITY	3.0	27.5	14.2	53.9	52.3	8.2	0.2	17.7
<b>NEW ENGLAND</b>								
ESTIMATED POPULATION	336	3,562	1,641	6,115	6,201	737	0	1,317
% STANDARD ERROR	36.4	11.3	16.2	8.4	8.4	23.3	0.0	15.2
% WITH CAPABILITY	3.2	34.3	15.8	58.9	59.7	7.1	0.0	12.7
<b>NORTHWEST MOUNTAIN</b>								
ESTIMATED POPULATION	737	8,353	2,902	14,365	14,089	2,264	65	4,977
% STANDARD ERROR	24.1	7.1	12.0	5.2	5.3	12.9	72.8	8.3
% WITH CAPABILITY	2.7	31.0	10.8	53.3	52.3	8.4	0.2	18.5
<b>SOUTHERN</b>								
ESTIMATED POPULATION	1,338	12,731	5,691	25,863	26,287	3,606	203	6,112
% STANDARD ERROR	17.5	5.7	8.4	3.8	3.7	10.6	49.7	7.4
% WITH CAPABILITY	3.1	29.7	13.3	60.4	61.4	8.4	0.5	14.3
<b>SOUTHWESTERN</b>								
ESTIMATED POPULATION	1,054	9,635	3,525	18,934	19,524	2,549	64	7,087
% STANDARD ERROR	18.9	6.6	10.9	4.5	4.4	12.2	65.2	6.7
% WITH CAPABILITY	3.0	27.7	10.1	54.4	56.1	7.3	0.2	20.4

7.3 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	VHF COMMUNICATIONS									
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF		
WESTERN-PACIFIC ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	1,650	13,101	5,959	30,331	28,776	4,254	118	6,669		
	15.9	5.5	8.1	3.5	3.5	9.6	45.4	6.6		
	3.4	27.2	12.3	62.9	59.6	8.8	0.2	13.8		
TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	8,337	77,076	33,392	150,004	148,286	22,421	567	44,787		
	6.9	1.9	3.5	0.9	0.8	3.9	25.5	2.1		
	3.1	29.1	12.6	56.6	56.0	8.5	0.2	16.9		

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.4 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

VHF COMMUNICATIONS

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
ALABAMA								
ESTIMATED POPULATION	86	1,017	458	2,579	2,320	291	0	699
% STANDARD ERROR	64.4	21.2	31.3	13.0	13.6	37.8	0.0	23.0
% WITH CAPABILITY	2.1	25.3	11.4	64.0	57.6	7.2	0.0	17.4
ALASKA								
ESTIMATED POPULATION	323	3,354	1,317	4,559	3,946	1,060	2	1,098
% STANDARD ERROR	35.6	10.5	16.4	8.6	9.4	19.2	106.1	17.6
% WITH CAPABILITY	3.5	36.0	14.1	48.9	42.3	11.4	0.0	11.8
ARIZONA								
ESTIMATED POPULATION	151	1,814	874	3,752	3,913	362	8	1,109
% STANDARD ERROR	50.2	15.6	22.3	10.5	10.4	30.2	190.8	16.5
% WITH CAPABILITY	2.3	27.5	13.3	57.0	59.4	5.5	0.1	16.8
ARKANSAS								
ESTIMATED POPULATION	27	737	214	1,325	1,390	323	0	882
% STANDARD ERROR	102.4	25.2	43.3	18.1	17.8	37.9	0.0	20.1
% WITH CAPABILITY	1.0	26.2	7.6	47.1	49.4	11.5	0.0	31.4
CALIFORNIA								
ESTIMATED POPULATION	1,405	10,371	4,740	24,398	22,981	3,421	110	5,272
% STANDARD ERROR	17.5	6.2	9.0	3.9	4.0	10.7	47.1	7.6
% WITH CAPABILITY	3.7	26.9	12.3	63.4	59.7	8.9	0.3	13.7
COLORADO								
ESTIMATED POPULATION	139	1,390	437	3,133	2,981	389	0	1,109
% STANDARD ERROR	54.8	17.4	30.8	11.6	12.0	32.3	0.0	17.8
% WITH CAPABILITY	2.5	25.1	7.9	56.5	53.8	7.0	0.0	20.0
CONNECTICUT								
ESTIMATED POPULATION	163	763	211	1,409	1,572	232	0	257
% STANDARD ERROR	54.9	25.2	40.2	17.8	17.1	42.6	0.0	28.0
% WITH CAPABILITY	7.0	32.6	9.0	60.2	67.2	9.9	0.0	11.0
DELAWARE								
ESTIMATED POPULATION	130	326	76	770	780	154	0	94
% STANDARD ERROR	50.5	35.0	64.5	22.6	22.3	47.6	0.0	50.3
% WITH CAPABILITY	11.4	28.7	6.7	68.0	68.8	13.5	0.0	8.3

7.4 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

VHF COMMUNICATIONS

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
DISTRICT OF COLUMBIA								
ESTIMATED POPULATION	0	6	2	23	35	9	0	57
% STANDARD ERROR	0.0	196.7	386.3	76.8	107.7	142.7	0.0	79.1
% WITH CAPABILITY	0.0	6.1	1.7	22.1	33.1	8.3	0.0	54.3
FLORIDA								
ESTIMATED POPULATION	773	5,193	2,388	10,272	10,808	1,428	145	1,874
% STANDARD ERROR	23.6	8.9	12.9	6.3	6.1	16.8	59.8	13.9
% WITH CAPABILITY	4.7	31.4	14.5	62.2	65.4	8.6	0.9	11.3
GEORGIA								
ESTIMATED POPULATION	81	1,408	647	3,805	3,365	248	0	1,007
% STANDARD ERROR	60.5	18.1	25.1	10.5	11.2	36.6	0.0	18.0
% WITH CAPABILITY	1.4	23.7	10.9	64.0	56.6	4.2	0.0	16.9
HAWAII								
ESTIMATED POPULATION	9	137	37	466	276	40	1	71
% STANDARD ERROR	123.8	44.9	76.5	30.2	35.7	82.9	247.4	65.5
% WITH CAPABILITY	1.4	21.1	5.7	72.1	42.6	6.1	0.2	10.9
IDAHO								
ESTIMATED POPULATION	16	743	367	1,397	1,416	279	6	297
% STANDARD ERROR	58.7	24.5	33.7	17.0	17.1	34.4	100.8	33.2
% WITH CAPABILITY	0.7	31.1	15.4	58.4	59.2	11.7	0.3	12.4
ILLINOIS								
ESTIMATED POPULATION	115	2,042	1,359	5,285	5,226	714	0	1,375
% STANDARD ERROR	52.0	15.3	18.0	9.0	9.0	23.3	0.0	14.9
% WITH CAPABILITY	1.3	23.6	15.7	61.0	60.3	8.2	0.0	15.9
INDIANA								
ESTIMATED POPULATION	237	1,340	677	2,508	2,734	465	0	670
% STANDARD ERROR	46.6	18.3	24.1	13.0	12.5	27.8	0.0	20.9
% WITH CAPABILITY	5.1	28.9	14.6	54.0	58.9	10.0	0.0	14.4
IOWA								
ESTIMATED POPULATION	135	910	326	1,625	1,675	271	0	859
% STANDARD ERROR	61.6	22.6	36.0	16.3	16.3	38.4	0.0	20.0
% WITH CAPABILITY	4.0	26.6	9.5	47.5	49.0	7.9	0.0	25.1

7.4 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 7

VHF COMMUNICATIONS

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
KANSAS								
ESTIMATED POPULATION	163	1,536	352	2,460	2,580	422	0	948
% STANDARD ERROR	52.0	17.7	33.1	13.2	13.1	32.1	0.0	18.8
% WITH CAPABILITY	3.6	34.0	7.8	54.4	57.0	9.3	0.0	21.0
KENTUCKY								
ESTIMATED POPULATION	75	634	271	904	1,045	206	31	259
% STANDARD ERROR	74.6	28.2	36.0	21.5	19.9	44.4	133.9	35.4
% WITH CAPABILITY	3.8	32.5	13.9	46.4	53.6	10.5	1.6	13.3
LOUISIANA								
ESTIMATED POPULATION	165	959	322	2,217	2,158	426	32	549
% STANDARD ERROR	45.6	21.4	37.1	13.9	13.6	31.1	120.9	23.2
% WITH CAPABILITY	4.7	27.6	9.3	63.8	62.1	12.3	0.9	15.8
MAINE								
ESTIMATED POPULATION	19	475	228	865	795	64	0	273
% STANDARD ERROR	140.7	29.6	41.2	22.9	23.9	79.7	0.0	34.9
% WITH CAPABILITY	1.2	30.1	14.5	54.9	50.5	4.0	0.0	17.3
MARYLAND								
ESTIMATED POPULATION	98	1,128	615	2,012	1,926	398	0	332
% STANDARD ERROR	72.1	19.9	26.1	14.9	15.1	32.7	0.0	34.5
% WITH CAPABILITY	3.0	34.6	18.9	61.7	59.1	12.2	0.0	10.2
MASSACHUSETTS								
ESTIMATED POPULATION	37	1,083	669	2,056	2,111	221	0	391
% STANDARD ERROR	86.9	20.1	26.1	15.0	14.7	43.2	0.0	28.8
% WITH CAPABILITY	1.1	31.5	19.4	59.8	61.4	6.4	0.0	11.4
MICHIGAN								
ESTIMATED POPULATION	177	2,436	1,746	5,184	5,302	918	0	1,317
% STANDARD ERROR	52.6	13.5	15.3	9.1	9.0	21.0	0.0	16.2
% WITH CAPABILITY	1.9	26.8	19.2	57.0	58.2	10.1	0.0	14.5
MINNESOTA								
ESTIMATED POPULATION	242	1,723	679	2,783	2,369	456	19	1,217
% STANDARD ERROR	40.2	15.9	23.9	12.5	13.5	31.0	128.1	16.5
% WITH CAPABILITY	4.0	28.8	11.4	46.5	39.6	7.6	0.3	20.3

7.4 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 7

STATE	VHF COMMUNICATIONS										NO VHF
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC				
MISSISSIPPI											
ESTIMATED POPULATION	15	633	330	1,092	1,199	264	1	473			
% STANDARD ERROR	146.8	26.9	36.7	19.9	19.1	42.7	329.9	26.4			
% WITH CAPABILITY	0.7	27.4	14.3	47.3	51.9	11.4	0.1	20.5			
MISSOURI											
ESTIMATED POPULATION	82	1,774	446	2,515	2,596	513	3	1,078			
% STANDARD ERROR	63.4	16.1	32.1	13.3	12.9	27.5	294.8	18.2			
% WITH CAPABILITY	1.6	34.2	8.6	48.5	50.0	9.9	0.1	20.8			
MONTANA											
ESTIMATED POPULATION	10	855	274	1,113	1,134	130	0	662			
% STANDARD ERROR	160.8	22.8	41.0	19.7	19.7	53.4	0.0	23.7			
% WITH CAPABILITY	0.4	33.6	10.8	43.8	44.6	5.1	0.0	26.0			
NEBRASKA											
ESTIMATED POPULATION	94	926	198	873	1,114	262	0	540			
% STANDARD ERROR	70.3	22.3	43.8	21.0	19.2	38.1	0.0	24.7			
% WITH CAPABILITY	4.2	41.0	8.8	38.7	49.3	11.6	0.0	23.9			
NEVADA											
ESTIMATED POPULATION	85	771	307	1,688	1,579	416	0	218			
% STANDARD ERROR	56.7	23.8	36.1	15.9	16.3	32.8	0.0	31.4			
% WITH CAPABILITY	3.4	30.9	12.3	67.5	63.2	16.6	0.0	8.7			
NEW HAMPSHIRE											
ESTIMATED POPULATION	79	795	335	1,087	1,094	164	0	254			
% STANDARD ERROR	77.1	24.8	37.2	19.5	19.9	46.7	0.0	37.4			
% WITH CAPABILITY	4.4	43.8	18.5	59.8	60.2	9.0	0.0	14.0			
NEW JERSEY											
ESTIMATED POPULATION	98	1,327	725	2,602	2,599	377	7	830			
% STANDARD ERROR	63.0	18.6	23.8	12.8	12.6	28.3	187.2	20.9			
% WITH CAPABILITY	2.1	28.6	15.7	56.2	56.1	8.1	0.2	17.9			
NEW MEXICO											
ESTIMATED POPULATION	57	498	523	1,527	1,452	138	6	541			
% STANDARD ERROR	63.0	28.5	27.9	16.7	16.9	56.0	139.0	22.5			
% WITH CAPABILITY	2.2	19.4	20.4	59.6	56.6	5.4	0.3	21.1			

7.4 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 5 OF 7

VHF COMMUNICATIONS

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
NEW YORK								
ESTIMATED POPULATION	249	2,170	1,217	4,505	4,261	723	0	1,492
% STANDARD ERROR	42.3	14.5	18.2	9.8	10.1	22.1	0.0	14.8
% WITH CAPABILITY	3.3	28.9	16.2	60.0	56.7	9.6	0.0	19.9
NORTH CAROLINA								
ESTIMATED POPULATION	207	2,002	498	3,470	3,470	387	0	935
% STANDARD ERROR	46.1	15.0	28.5	11.0	11.0	33.0	0.0	19.5
% WITH CAPABILITY	3.6	34.4	8.6	59.6	59.6	6.6	0.0	16.1
NORTH DAKOTA								
ESTIMATED POPULATION	70	377	216	847	649	26	0	538
% STANDARD ERROR	85.1	34.3	47.2	23.6	26.3	91.6	0.0	25.2
% WITH CAPABILITY	3.7	19.9	11.4	44.8	34.3	1.4	0.0	28.4
OHIO								
ESTIMATED POPULATION	241	3,004	900	5,031	4,959	762	75	1,652
% STANDARD ERROR	41.3	12.3	21.0	9.1	9.2	21.7	71.8	14.2
% WITH CAPABILITY	2.6	32.5	9.7	54.4	53.7	8.2	0.8	17.9
OKLAHOMA								
ESTIMATED POPULATION	121	1,462	326	2,400	2,458	382	2	864
% STANDARD ERROR	61.3	16.9	35.1	13.4	13.0	31.9	108.2	19.0
% WITH CAPABILITY	2.6	31.1	6.9	51.1	52.3	8.1	0.0	18.4
OREGON								
ESTIMATED POPULATION	144	1,982	683	3,474	3,519	759	58	911
% STANDARD ERROR	52.6	14.7	24.9	10.7	10.8	22.7	79.9	19.0
% WITH CAPABILITY	2.3	32.4	11.2	56.7	57.5	12.4	1.0	14.9
PENNSYLVANIA								
ESTIMATED POPULATION	234	1,901	832	3,774	4,039	567	9	2,036
% STANDARD ERROR	38.6	14.7	21.5	10.5	10.1	25.0	156.1	12.9
% WITH CAPABILITY	3.0	24.5	10.7	48.6	52.1	7.3	0.1	26.2
RHODE ISLAND								
ESTIMATED POPULATION	3	200	92	291	283	8	0	50
% STANDARD ERROR	407.9	47.6	68.4	39.4	40.0	220.1	0.0	83.7
% WITH CAPABILITY	0.6	38.5	17.7	56.1	54.5	1.6	0.0	9.7

7.4 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 6 OF 7

VHF COMMUNICATIONS

STATE	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC	NO VHF
<b>SOUTH CAROLINA</b>								
ESTIMATED POPULATION	67	641	343	1,672	1,557	284	0	282
% STANDARD ERROR	67.0	25.9	36.1	16.4	17.0	39.2	0.0	33.5
% WITH CAPABILITY	2.9	27.4	14.7	71.5	66.6	12.2	0.0	12.1
<b>SOUTH DAKOTA</b>								
ESTIMATED POPULATION	16	416	98	545	433	81	0	574
% STANDARD ERROR	136.6	32.7	67.9	28.4	31.9	70.4	0.0	25.9
% WITH CAPABILITY	1.0	26.7	6.3	35.0	27.8	5.2	0.0	36.9
<b>TENNESSEE</b>								
ESTIMATED POPULATION	20	940	726	1,827	2,109	437	25	412
% STANDARD ERROR	128.9	22.2	24.3	15.3	14.1	30.7	116.8	28.9
% WITH CAPABILITY	0.6	28.8	22.2	56.0	64.6	13.4	0.8	12.6
<b>TEXAS</b>								
ESTIMATED POPULATION	684	5,978	2,140	11,465	12,067	1,280	24	4,251
% STANDARD ERROR	23.7	8.5	14.2	5.9	5.7	16.5	57.6	9.1
% WITH CAPABILITY	3.2	28.1	10.1	53.9	56.7	6.0	0.1	20.0
<b>UTAH</b>								
ESTIMATED POPULATION	100	504	166	617	698	102	0	212
% STANDARD ERROR	67.2	29.9	51.3	25.3	23.5	62.3	0.0	42.6
% WITH CAPABILITY	7.4	37.0	12.2	45.2	51.1	7.5	0.0	15.5
<b>VERMONT</b>								
ESTIMATED POPULATION	34	245	106	408	347	48	0	91
% STANDARD ERROR	104.5	43.6	65.5	32.3	35.9	90.8	0.0	60.3
% WITH CAPABILITY	5.0	35.3	15.3	58.6	49.9	6.9	0.0	13.1
<b>VIRGINIA</b>								
ESTIMATED POPULATION	166	937	789	2,545	2,417	276	3	736
% STANDARD ERROR	50.1	21.8	24.4	12.7	12.9	32.1	216.5	21.9
% WITH CAPABILITY	3.9	22.3	18.7	60.4	57.4	6.6	0.1	17.5
<b>WASHINGTON</b>								
ESTIMATED POPULATION	314	2,704	931	3,899	3,958	560	0	1,709
% STANDARD ERROR	38.5	12.6	21.0	10.2	10.3	26.3	0.0	14.4
% WITH CAPABILITY	3.9	33.7	11.6	48.6	49.3	7.0	0.0	21.3



7.4 1991 GENERAL AVIATION AIRCRAFT WITH VHF COMMUNICATIONS EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	VHF COMMUNICATIONS										NO VHF
	360 CH PORT	360 CH FXD	720 CH PORT	720 CH FXD	1+ SYS	HF RADIO	COCKPIT VCE REC				
WEST VIRGINIA	35	449	91	741	809	112	0			169	
	100.8	33.0	62.6	25.1	23.8	63.0	0.0			46.6	
	2.6	33.8	6.8	55.9	61.0	8.4	0.0			12.8	
WISCONSIN	318	1,613	1,012	3,208	2,961	446	0			1,011	
	34.8	16.5	20.2	11.7	12.1	32.2	0.0			18.2	
	5.3	26.6	16.7	53.0	48.9	7.4	0.0			16.7	
WYOMING	14	175	43	731	382	45	0			77	
	152.1	44.3	97.0	24.2	32.5	76.3	0.0			69.9	
	1.4	18.3	4.5	76.3	39.9	4.7	0.0			8.0	
PUERTO RICO	9	235	24	213	361	60	0			159	
	224.0	37.4	131.8	44.8	32.4	78.3	0.0			57.1	
	1.5	40.5	4.2	36.9	62.3	10.3	0.0			27.4	
OTHER U.S. TERRITORIES	5	36	8	55	82	18	0			13	
	295.5	87.2	196.3	77.3	58.6	123.8	0.0			186.8	
	4.9	33.7	7.8	52.2	77.7	17.2	0.0			12.1	
TOTAL	8,337	77,076	33,392	150,004	148,286	22,421	567			44,787	
	6.9	1.9	3.3	0.9	0.8	3.9	25.5			2.1	
	3.1	29.1	12.6	56.6	56.0	8.5	0.2			16.9	

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.5 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
<b>FIXED WING - TURBOPROP</b>								
2 ENG: 1-12 SEATS								
ESTIMATED POPULATION	4,141	4,209	4,155	271	287	4,109	13	317
‡ STANDARD ERROR	2.0	1.8	2.0	27.2	25.0	2.1	123.3	25.9
‡ WITH CAPABILITY	92.4	93.9	92.7	6.1	6.4	91.7	0.3	7.1
2 ENG: 13+ SEATS								
ESTIMATED POPULATION	1,234	1,234	1,231	19	195	1,214	32	22
‡ STANDARD ERROR	1.1	1.1	1.3	74.1	28.0	1.4	48.6	64.7
‡ WITH CAPABILITY	98.5	98.5	98.2	1.5	15.5	96.9	2.6	1.7
2 ENGINE: TOTAL								
ESTIMATED POPULATION	5,375	5,443	5,385	290	482	5,323	46	338
‡ STANDARD ERROR	1.5	1.4	1.5	25.9	18.7	1.7	49.6	24.6
‡ WITH CAPABILITY	93.7	94.9	93.9	5.1	8.4	92.8	0.8	5.9
<b>TURBOPROP: OTHER</b>								
ESTIMATED POPULATION	309	308	304	235	5	245	0	294
‡ STANDARD ERROR	10.2	10.4	11.1	13.4	240.0	18.9	0.0	15.3
‡ WITH CAPABILITY	56.9	56.7	55.8	43.1	0.9	45.1	0.0	54.1
<b>TURBOPROP: TOTAL</b>								
ESTIMATED POPULATION	5,685	5,752	5,689	525	486	5,568	46	632
‡ STANDARD ERROR	1.6	1.4	1.6	15.5	18.7	1.8	49.6	14.9
‡ WITH CAPABILITY	90.5	91.6	90.6	8.4	7.7	88.7	0.7	10.1
<b>FIXED WING - TURBOJET</b>								
2 ENGINE TURBOJET								
ESTIMATED POPULATION	4,253	4,272	4,173	111	298	4,010	246	123
‡ STANDARD ERROR	1.2	1.2	1.6	45.4	24.5	2.0	26.6	40.9
‡ WITH CAPABILITY	97.0	97.5	95.2	2.5	6.8	91.5	5.6	2.8
<b>TURBOJET: OTHER</b>								
ESTIMATED POPULATION	500	480	500	119	91	454	87	103
‡ STANDARD ERROR	4.9	5.2	4.9	19.2	25.1	6.3	25.6	21.4
‡ WITH CAPABILITY	78.4	75.2	78.4	18.6	14.2	71.2	13.6	16.2
<b>TURBOJET: TOTAL</b>								
ESTIMATED POPULATION	4,753	4,752	4,673	230	389	4,464	333	226
‡ STANDARD ERROR	1.2	1.2	1.5	24.1	19.7	1.9	20.8	24.3
‡ WITH CAPABILITY	94.7	94.6	93.1	4.6	7.7	88.9	6.6	4.5

7.5 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	PRECISION APPROACH EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP NO TRANS EQUIP
<b>FIXED WING: TOTAL</b>							
ESTIMATED POPULATION	134,819	127,091	122,267	100,752	16,183	167,292	1,238 64,992
& STANDARD ERROR	0.9	0.9	0.9	1.1	4.9	0.7	16.9 1.5
& WITH CAPABILITY	55.3	52.1	50.2	41.3	6.6	68.6	0.5 26.7
<b>ROTORCRAFT</b>							
<b>PISTON</b>							
ESTIMATED POPULATION	292	196	207	5,525	268	2,019	3 3,653
& STANDARD ERROR	29.0	38.8	36.2	1.6	29.7	8.1	259.1 4.2
& WITH CAPABILITY	5.0	3.3	3.5	94.5	4.6	34.5	0.0 62.5
<b>TURBINE</b>							
ESTIMATED POPULATION	1,638	1,325	1,496	2,743	457	3,902	40 480
& STANDARD ERROR	9.9	11.6	10.4	6.2	25.9	3.0	67.9 18.3
& WITH CAPABILITY	35.4	28.6	32.3	59.3	9.9	84.4	0.9 10.4
<b>ROTORCRAFT: TOTAL</b>							
ESTIMATED POPULATION	1,930	1,520	1,703	8,268	724	5,921	43 4,132
& STANDARD ERROR	9.5	11.3	10.1	2.3	19.7	3.4	65.7 4.3
& WITH CAPABILITY	18.4	14.5	16.3	78.9	6.9	56.5	0.4 39.5
<b>OTHER AIRCRAFT</b>							
ESTIMATED POPULATION	53	34	38	10,722	135	187	0 10,473
& STANDARD ERROR	54.4	81.7	75.0	0.3	40.9	28.9	0.0 0.7
& WITH CAPABILITY	0.5	0.3	0.4	99.4	1.3	1.7	0.0 97.1
<b>TOTAL</b>							
ESTIMATED POPULATION	136,802	128,645	124,009	119,742	17,042	173,401	1,281 79,597
& STANDARD ERROR	0.9	0.9	0.9	1.0	4.7	0.7	16.5 1.3
& WITH CAPABILITY	51.6	48.5	46.8	45.2	6.4	65.4	0.5 30.0

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

7.6 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	PRECISION APPROACH EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)				
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
EXECUTIVE								
ESTIMATED POPULATION	10,321	10,330	9,941	347	534	10,119	375	214
& STANDARD ERROR	4.1	4.1	4.1	29.5	19.4	4.3	22.1	35.5
& WITH CAPABILITY	95.6	95.7	92.1	3.2	4.9	93.7	3.5	2.0
BUSINESS								
ESTIMATED POPULATION	28,778	28,533	27,546	4,200	1,970	30,900	165	1,607
& STANDARD ERROR	3.2	3.2	3.3	9.8	14.6	3.2	52.5	15.1
& WITH CAPABILITY	85.0	84.3	81.4	12.4	5.8	91.3	0.5	4.7
PERSONAL								
ESTIMATED POPULATION	65,238	61,405	59,252	52,624	7,125	89,311	410	28,722
& STANDARD ERROR	2.0	2.0	2.1	1.9	7.5	1.5	31.2	2.6
& WITH CAPABILITY	53.0	49.9	48.2	42.8	5.8	72.6	0.3	23.3
INSTRUCTIONAL								
ESTIMATED POPULATION	11,469	9,513	9,042	7,330	1,764	16,655	114	1,947
& STANDARD ERROR	6.2	6.9	7.1	7.4	16.5	4.9	70.2	12.8
& WITH CAPABILITY	59.2	49.1	46.7	37.8	9.1	85.9	0.6	10.0
AERIAL APPLICATION								
ESTIMATED POPULATION	822	551	657	6,724	316	1,417	0	6,112
& STANDARD ERROR	19.8	23.3	21.3	3.6	34.1	14.8	0.0	3.4
& WITH CAPABILITY	10.8	7.2	8.6	88.3	4.2	18.6	0.0	80.3
AERIAL OBSERVATION								
ESTIMATED POPULATION	3,245	2,782	2,845	1,906	312	4,446	0	843
& STANDARD ERROR	11.6	12.4	12.3	13.0	33.0	9.5	0.0	19.4
& WITH CAPABILITY	60.2	51.6	52.8	35.3	5.8	82.5	0.0	15.6
OTHER WORK USE								
ESTIMATED POPULATION	501	493	405	1,195	81	1,006	0	686
& STANDARD ERROR	24.2	25.1	24.6	16.0	49.8	16.8	0.0	22.5
& WITH CAPABILITY	28.4	28.3	23.0	67.8	4.6	57.1	0.0	38.9
COMMUTER AIR CARRIER								
ESTIMATED POPULATION	837	757	756	87	153	746	5	124
& STANDARD ERROR	13.7	14.3	14.3	53.4	31.9	14.4	83.4	45.2
& WITH CAPABILITY	90.6	81.9	81.8	19.4	16.5	80.7	0.5	13.4

7.6 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
AIR TAXI								
ESTIMATED POPULATION	4,577	4,414	4,554	1,130	657	4,962	0	443
% STANDARD ERROR	7.8	8.0	7.8	16.9	22.7	7.5	0.0	28.1
% WITH CAPABILITY	79.7	76.9	79.3	19.7	11.4	86.4	0.0	7.7
OTHER								
ESTIMATED POPULATION	2,071	1,908	1,990	1,882	323	2,808	91	1,132
% STANDARD ERROR	11.1	11.3	11.5	13.2	27.6	10.3	51.3	16.5
% WITH CAPABILITY	49.5	45.6	47.6	45.0	7.7	67.1	2.2	27.1
INACTIVE								
ESTIMATED POPULATION	8,636	7,695	6,674	42,646	3,866	10,301	107	38,391
% STANDARD ERROR	5.0	5.2	5.7	1.0	9.1	4.9	57.6	1.4
% WITH CAPABILITY	16.5	14.7	12.8	81.5	7.4	19.7	0.2	73.4
TOTAL								
ESTIMATED POPULATION	136,802	128,645	124,009	119,742	17,042	173,401	1,281	79,597
% STANDARD ERROR	0.9	0.9	0.9	1.0	4.7	0.7	16.5	1.3
% WITH CAPABILITY	51.6	48.5	46.8	45.2	6.4	65.4	0.5	30.0

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

7.7 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
<b>ALASKAN</b>								
ESTIMATED POPULATION	2,733	2,200	2,304	6,274	1,143	2,973	8	5,246
% STANDARD ERROR	11.1	12.6	12.1	7.2	17.8	10.7	123.7	7.9
% WITH CAPABILITY	29.3	23.6	24.7	67.3	12.3	31.9	0.1	56.3
<b>CENTRAL</b>								
ESTIMATED POPULATION	7,227	7,004	6,390	7,795	1,216	8,749	117	5,648
% STANDARD ERROR	7.6	7.7	8.1	7.0	18.9	6.9	60.9	8.0
% WITH CAPABILITY	47.0	45.5	41.5	50.7	7.9	56.9	0.8	36.7
<b>EASTERN</b>								
ESTIMATED POPULATION	16,414	15,338	14,808	12,625	1,647	20,225	317	8,383
% STANDARD ERROR	4.9	5.0	5.1	5.3	15.5	4.4	28.4	6.2
% WITH CAPABILITY	54.8	51.2	49.5	42.2	5.5	67.6	1.1	28.0
<b>GREAT LAKES</b>								
ESTIMATED POPULATION	22,863	22,333	21,244	22,624	2,690	28,865	331	16,190
% STANDARD ERROR	4.1	4.1	4.2	3.9	12.2	3.6	35.6	4.5
% WITH CAPABILITY	48.5	47.4	45.1	48.0	5.7	61.2	0.7	34.3
<b>NEW ENGLAND</b>								
ESTIMATED POPULATION	5,837	5,438	4,906	4,193	583	7,325	0	2,604
% STANDARD ERROR	8.7	9.0	9.4	9.5	28.3	7.7	0.0	11.3
% WITH CAPABILITY	56.2	52.4	47.2	40.4	5.6	70.5	0.0	25.1
<b>NORTHWEST MOUNTAIN</b>								
ESTIMATED POPULATION	12,601	11,663	11,493	13,407	1,903	16,506	17	9,114
% STANDARD ERROR	5.6	5.8	5.9	5.1	15.0	4.9	73.1	6.1
% WITH CAPABILITY	46.7	43.3	42.6	49.7	7.1	61.2	0.1	33.8
<b>SOUTHERN</b>								
ESTIMATED POPULATION	24,666	22,963	22,993	17,026	2,588	30,720	277	10,431
% STANDARD ERROR	3.9	4.0	4.0	4.6	12.5	3.5	38.0	5.7
% WITH CAPABILITY	57.6	53.6	53.7	39.8	6.0	71.7	0.6	24.4
<b>SOUTHWESTERN</b>								
ESTIMATED POPULATION	18,233	16,446	16,265	15,640	2,303	23,264	77	10,292
% STANDARD ERROR	4.6	4.8	4.8	4.8	13.6	4.0	44.3	5.6
% WITH CAPABILITY	52.4	47.2	46.7	44.9	6.6	66.8	0.2	29.6

## 7.7 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT BY REGION OF BASED AIRCRAFT

**PAGE 2 OF 2**

REGION	PRECISION			APPROACH	EQUIPMENT (*)		TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP		
WESTERN-PACIFIC	26,229	25,260	23,606	20,158	2,969	34,772	137	11,690		
	3.7	3.7	3.9	4.0	11.5	3.2	54.2	5.0		
	54.4	52.4	48.9	41.8	6.2	72.1	0.3	24.2		
TOTAL	136,802	128,645	124,009	119,742	17,042	173,401	1,281	79,597		
	0.9	0.9	0.9	1.0	4.7	0.7	16.5	1.3		
	51.6	48.5	46.8	45.2	6.4	65.4	0.5	30.0		

**NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.**

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.



7.8 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	PRECISION EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)		
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP
ALABAMA						
ESTIMATED POPULATION	2,089	2,064	2,013	200	2,738	0
% STANDARD ERROR	14.2	14.4	14.5	46.3	12.6	0.0
% WITH CAPABILITY	51.9	51.3	50.0	5.0	68.0	0.0
ALASKA						
ESTIMATED POPULATION	2,733	2,200	2,304	1,143	2,973	8
% STANDARD ERROR	11.1	12.6	12.1	17.8	10.7	123.7
% WITH CAPABILITY	29.3	23.6	24.7	12.3	31.9	0.1
ARIZONA						
ESTIMATED POPULATION	3,234	3,309	3,109	532	4,498	6
% STANDARD ERROR	11.2	11.2	11.5	28.4	9.7	102.6
% WITH CAPABILITY	49.1	50.3	47.2	8.1	68.3	0.1
ARKANSAS						
ESTIMATED POPULATION	1,337	1,158	1,170	236	1,506	9
% STANDARD ERROR	17.9	19.1	18.9	42.7	16.8	99.4
% WITH CAPABILITY	47.5	41.2	41.6	8.4	53.6	0.3
CALIFORNIA						
ESTIMATED POPULATION	21,461	20,490	19,083	2,298	27,904	104
% STANDARD ERROR	4.2	4.2	4.4	13.0	3.6	64.2
% WITH CAPABILITY	55.8	53.2	49.6	6.0	72.5	0.3
COLORADO						
ESTIMATED POPULATION	2,752	2,564	2,592	143	3,624	1
% STANDARD ERROR	12.5	12.9	12.9	57.2	10.9	166.1
% WITH CAPABILITY	49.6	46.2	46.7	2.6	65.3	0.0
CONNECTICUT						
ESTIMATED POPULATION	1,297	1,302	1,244	126	1,581	0
% STANDARD ERROR	18.7	18.7	19.1	61.3	16.9	0.0
% WITH CAPABILITY	55.4	55.6	53.2	5.4	67.6	0.0
DELAWARE						
ESTIMATED POPULATION	850	804	759	96	916	18
% STANDARD ERROR	21.8	22.2	23.0	70.8	20.7	94.4
% WITH CAPABILITY	75.0	71.0	67.0	8.5	80.9	1.6

7.8 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

STATE	PRECISION APPROACH			EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP		
DISTRICT OF COLUMBIA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	15 106.6 13.9	32 116.0 30.5	35 107.7 33.1	70 67.9 66.9	10 106.6 9.9	31 118.4 29.6	4 179.4 3.5	60 77.5 57.0		
FLORIDA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	9,521 6.5 57.6	8,920 6.7 54.0	9,095 6.7 55.1	6,369 7.7 38.6	1,122 19.0 6.8	12,606 5.7 76.3	112 66.0 0.7	3,450 10.2 20.9		
GEORGIA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	3,591 10.9 60.4	3,203 11.5 53.8	3,227 11.5 54.2	2,306 12.9 38.8	208 40.8 3.5	4,429 9.9 74.5	24 81.6 0.4	1,439 15.3 24.2		
HAWAII ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	364 35.4 56.3	331 38.0 51.2	349 36.7 53.9	278 32.3 43.0	34 88.0 5.2	524 28.0 81.0	1 494.0 0.2	114 49.1 17.6		
IDAHO ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	1,278 18.2 53.4	975 20.6 40.8	1,011 20.2 42.3	1,063 18.4 44.4	270 41.3 11.3	1,524 16.4 63.7	5 118.3 0.2	663 23.1 27.7		
ILLINOIS ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	5,210 9.1 60.2	4,817 9.4 55.6	4,620 9.6 53.4	3,226 10.8 37.2	279 39.2 3.2	5,936 8.6 68.5	31 48.5 0.4	2,513 12.0 29.0		
INDIANA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	2,474 13.2 53.3	2,384 13.4 51.4	2,170 13.8 46.7	2,030 13.8 43.7	463 31.6 10.0	2,678 12.6 57.7	38 107.3 0.8	1,535 15.3 33.1		
IOWA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	1,591 16.6 46.5	1,548 16.8 45.3	1,462 17.3 42.8	1,770 14.7 51.8	140 55.0 4.1	1,899 15.2 55.5	57 96.0 1.7	1,351 16.6 39.5		

7.8 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 7

STATE	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
KANSAS								
ESTIMATED POPULATION	2,302	2,187	2,072	2,212	287	2,666	36	1,677
& STANDARD ERROR	13.8	14.2	14.5	13.4	40.1	12.7	112.5	15.1
& WITH CAPABILITY	50.9	48.3	45.8	48.9	6.3	58.9	0.8	37.1
KENTUCKY								
ESTIMATED POPULATION	892	920	855	940	185	1,171	12	604
& STANDARD ERROR	21.9	21.7	22.2	21.0	52.3	19.3	147.6	25.4
& WITH CAPABILITY	45.7	47.2	43.8	48.2	9.5	60.1	0.6	31.0
LOUISIANA								
ESTIMATED POPULATION	1,795	1,630	1,654	1,441	213	2,673	0	743
& STANDARD ERROR	15.2	16.1	15.9	16.4	44.3	12.6	0.0	20.4
& WITH CAPABILITY	51.7	46.9	47.6	41.5	6.1	76.9	0.0	21.4
MAINE								
ESTIMATED POPULATION	664	594	524	864	151	881	0	549
& STANDARD ERROR	25.9	27.8	29.1	20.9	53.7	22.6	0.0	25.2
& WITH CAPABILITY	42.1	37.7	33.2	54.8	9.6	55.9	0.0	34.8
MARYLAND								
ESTIMATED POPULATION	2,007	1,844	1,755	1,193	84	2,716	1	497
& STANDARD ERROR	14.8	15.4	15.8	19.1	62.0	12.9	420.1	27.4
& WITH CAPABILITY	61.6	56.6	53.8	36.6	2.6	83.3	0.0	15.3
MASSACHUSETTS								
ESTIMATED POPULATION	2,239	2,057	2,062	1,089	66	2,714	0	679
& STANDARD ERROR	14.3	14.9	14.8	18.8	72.7	13.0	0.0	22.0
& WITH CAPABILITY	65.1	59.8	60.0	31.7	1.9	78.9	0.0	19.7
MICHIGAN								
ESTIMATED POPULATION	4,745	4,717	4,561	3,936	504	6,095	133	2,620
& STANDARD ERROR	9.5	9.5	9.7	9.7	25.0	8.4	65.2	11.6
& WITH CAPABILITY	52.1	51.8	50.1	43.2	5.5	67.0	1.5	28.8
MINNESOTA								
ESTIMATED POPULATION	2,086	1,970	1,888	3,681	231	3,428	77	2,315
& STANDARD ERROR	14.2	14.6	15.1	10.2	41.3	11.3	64.5	12.3
& WITH CAPABILITY	34.9	32.9	31.5	61.5	3.9	57.3	1.3	38.7

7.8 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 7

STATE	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
<b>MISSISSIPPI</b>								
ESTIMATED POPULATION	1,107	995	970	1,184	166	1,287	24	894
& STANDARD ERROR	19.9	20.8	21.0	18.6	52.9	18.7	132.0	20.6
& WITH CAPABILITY	47.9	43.1	42.0	51.3	7.2	55.7	1.0	38.7
<b>MISSOURI</b>								
ESTIMATED POPULATION	2,602	2,541	2,202	2,410	427	3,272	21	1,583
& STANDARD ERROR	13.0	13.1	14.0	13.0	31.0	11.7	102.1	15.4
& WITH CAPABILITY	50.2	49.0	42.5	46.5	8.2	63.1	0.4	30.5
<b>MONTANA</b>								
ESTIMATED POPULATION	855	752	710	1,649	226	1,083	2	1,289
& STANDARD ERROR	22.4	23.8	24.3	15.8	45.5	20.0	163.7	17.6
& WITH CAPABILITY	33.6	29.6	27.9	64.8	8.9	42.6	0.1	50.7
<b>NEBRASKA</b>								
ESTIMATED POPULATION	732	728	653	1,402	362	912	3	1,036
& STANDARD ERROR	22.5	22.6	23.4	16.7	35.3	20.8	174.3	18.7
& WITH CAPABILITY	32.4	32.3	28.9	62.1	16.1	40.4	0.2	45.9
<b>NEVADA</b>								
ESTIMATED POPULATION	1,147	1,107	1,043	1,351	99	1,827	25	566
& STANDARD ERROR	18.5	19.0	19.5	17.2	64.3	15.1	122.5	23.4
& WITH CAPABILITY	45.9	44.3	41.7	54.1	4.0	73.1	1.0	22.6
<b>NEW HAMPSHIRE</b>								
ESTIMATED POPULATION	1,039	952	571	777	172	1,264	0	431
& STANDARD ERROR	20.5	21.2	25.8	23.1	57.6	18.6	0.0	28.7
& WITH CAPABILITY	57.2	52.4	31.5	42.8	9.5	69.6	0.0	23.7
<b>NEW JERSEY</b>								
ESTIMATED POPULATION	2,410	2,200	2,114	2,022	157	3,325	71	1,152
& STANDARD ERROR	13.3	13.7	13.9	14.0	45.9	11.5	45.1	17.7
& WITH CAPABILITY	52.0	47.5	45.7	43.7	3.4	71.8	1.5	24.9
<b>NEW MEXICO</b>								
ESTIMATED POPULATION	1,295	1,068	1,158	1,196	240	1,516	4	967
& STANDARD ERROR	18.0	19.4	18.7	16.7	43.3	16.6	205.6	17.8
& WITH CAPABILITY	50.5	41.6	45.2	46.6	9.4	59.2	0.1	37.7

**PAGE 5 OF 7**

7-33

7.8 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 6 OF 7

STATE	PRECISION APPROACH EQUIPMENT (*)			TRANSPONDER EQUIPMENT (*)		
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP
SOUTH CAROLINA						
ESTIMATED POPULATION	1,483	1,364	1,386	185	1,781	16
* STANDARD ERROR	17.6	18.3	18.1	49.6	16.1	145.1
* WITH CAPABILITY	63.4	58.3	59.3	7.9	76.2	0.7
SOUTH DAKOTA						
ESTIMATED POPULATION	534	466	440	141	485	0
* STANDARD ERROR	28.8	31.4	32.2	56.4	29.8	0.0
* WITH CAPABILITY	34.3	30.0	28.3	9.1	31.2	0.0
TENNESSEE						
ESTIMATED POPULATION	1,956	1,896	1,793	157	2,267	19
* STANDARD ERROR	14.7	15.1	15.4	54.0	13.9	100.5
* WITH CAPABILITY	59.9	58.1	54.9	4.8	69.4	0.6
TEXAS						
ESTIMATED POPULATION	11,566	10,611	10,285	1,125	14,791	58
* STANDARD ERROR	5.8	6.0	6.1	19.6	5.2	53.4
* WITH CAPABILITY	54.4	49.9	48.4	5.3	69.5	0.3
UTAH						
ESTIMATED POPULATION	662	655	656	147	966	0
* STANDARD ERROR	24.8	25.2	25.4	52.3	21.1	0.0
* WITH CAPABILITY	48.5	48.0	48.1	10.8	70.8	0.0
VERMONT						
ESTIMATED POPULATION	322	294	285	37	504	0
* STANDARD ERROR	36.8	39.0	39.2	94.7	29.5	0.0
* WITH CAPABILITY	46.3	42.3	41.0	5.3	72.4	0.0
VIRGINIA						
ESTIMATED POPULATION	2,383	2,274	2,293	353	3,113	9
* STANDARD ERROR	13.2	13.5	13.5	30.1	11.7	129.6
* WITH CAPABILITY	56.6	54.0	54.5	8.4	73.9	0.2
WASHINGTON						
ESTIMATED POPULATION	3,444	3,177	3,099	434	5,129	2
* STANDARD ERROR	11.1	11.5	11.6	31.1	9.0	406.3
* WITH CAPABILITY	42.9	39.6	38.6	5.4	63.9	0.0

7.8 1991 GENERAL AVIATION AIRCRAFT WITH PRECISION APPROACH AND TRANSPONDER EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	PRECISION APPROACH EQUIPMENT (*)				TRANSPONDER EQUIPMENT (*)			
	LOCALIZER	MARKER BEACON	GLIDE SLOPE	NO PREC EQUIP	MODE A TRANSP	MODE C TRANSP	MODE S TRANSP	NO TRANS EQUIP
<b>WEST VIRGINIA</b>								
ESTIMATED POPULATION	729	678	677	546	152	797	0	376
% STANDARD ERROR	25.1	25.8	26.1	28.4	58.8	23.9	0.0	33.6
% WITH CAPABILITY	55.0	51.1	51.1	41.2	11.5	60.1	0.0	28.4
<b>WISCONSIN</b>								
ESTIMATED POPULATION	2,648	2,723	2,618	3,255	356	3,387	11	2,404
% STANDARD ERROR	12.7	12.7	12.9	11.1	36.6	11.3	110.3	12.6
% WITH CAPABILITY	43.7	45.0	43.2	53.7	5.9	55.9	0.2	39.7
<b>WYOMING</b>								
ESTIMATED POPULATION	561	512	544	389	218	513	3	243
% STANDARD ERROR	27.2	28.8	27.7	32.9	43.9	28.4	211.9	40.9
% WITH CAPABILITY	58.6	53.4	56.8	40.6	22.8	53.5	0.3	25.3
<b>PUERTO RICO</b>								
ESTIMATED POPULATION	355	349	371	204	37	419	0	133
% STANDARD ERROR	32.5	32.9	31.8	49.2	110.8	30.6	0.0	60.0
% WITH CAPABILITY	61.4	60.4	64.1	35.3	6.4	72.4	0.0	23.0
<b>OTHER U.S. TERRITORIES</b>								
ESTIMATED POPULATION	77	77	77	29	8	75	0	24
% STANDARD ERROR	60.1	60.1	60.1	123.8	213.5	61.7	0.0	137.0
% WITH CAPABILITY	72.3	72.3	72.3	27.7	7.2	70.3	0.0	22.5
<b>TOTAL</b>								
ESTIMATED POPULATION	136,802	128,645	124,009	119,742	17,042	173,401	1,281	79,597
% STANDARD ERROR	0.9	0.9	0.9	1.0	4.7	0.7	16.5	1.3
% WITH CAPABILITY	51.6	48.5	46.8	45.2	6.4	65.4	0.5	30.0

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) DATA ON MICROWAVE LANDING SYSTEMS (MLS) AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS I AND TCAS II) WERE COLLECTED BUT ARE NOT INCLUDED BECAUSE THE DATA COLLECTED WERE NOT SUFFICIENT TO PROVIDE REASONABLE ESTIMATES.

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 1 OF

BASIC NAVIGATION EQUIPMENT

AIRCRAFT TYPE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>FIXED WING</b>								
<b>FIXED WING - PISTON</b>								
1 ENG: 1-3 SEATS								
ESTIMATED POPULATION	2,383	18,808	6,506	24,241	12,193	7,419	2,205	724
% STANDARD ERROR	13.4	4.1	8.0	3.3	5.3	7.2	14.0	23.6
% WITH CAPABILITY	2.7	21.3	7.4	27.4	13.8	8.4	2.5	0.8
1 ENG: 4+ SEATS								
ESTIMATED POPULATION	3,043	34,089	13,695	78,071	93,037	82,710	51,137	13,206
% STANDARD ERROR	11.8	3.1	5.4	1.4	0.9	1.1	2.0	5.0
% WITH CAPABILITY	2.6	28.9	11.6	66.1	78.8	70.1	43.3	11.2
1 ENGINE: TOTAL								
ESTIMATED POPULATION	5,426	52,897	20,202	102,312	105,230	90,129	53,341	13,930
% STANDARD ERROR	8.8	2.5	4.5	1.3	1.0	1.2	2.0	4.9
% WITH CAPABILITY	2.6	25.6	9.8	49.6	51.0	43.7	25.8	6.8
2 ENG: 1-6 SEATS								
ESTIMATED POPULATION	672	3,884	1,671	12,597	16,145	15,572	14,322	7,156
% STANDARD ERROR	23.8	9.1	14.6	3.0	1.2	1.6	2.2	5.4
% WITH CAPABILITY	3.9	22.4	9.6	72.6	93.0	89.7	82.5	41.2
2 ENG: 7+ SEATS								
ESTIMATED POPULATION	164	1,464	1,103	6,172	7,403	7,175	6,896	3,740
% STANDARD ERROR	43.7	13.7	17.2	3.6	1.7	2.1	2.1	6.3
% WITH CAPABILITY	1.9	17.3	13.0	72.9	87.5	84.8	81.5	44.2
2 ENGINE: TOTAL								
ESTIMATED POPULATION	835	5,348	2,774	18,768	23,548	22,748	21,218	10,896
% STANDARD ERROR	21.0	7.6	11.1	2.3	1.0	1.3	1.6	4.2
% WITH CAPABILITY	3.2	20.7	10.7	72.7	91.2	88.1	82.2	42.2
<b>PISTON: OTHER</b>								
ESTIMATED POPULATION	5	8	22	103	101	114	78	5
% STANDARD ERROR	89.7	94.7	49.1	29.0	17.7	25.0	23.2	243.6
% WITH CAPABILITY	1.8	2.9	8.1	38.0	37.0	42.0	28.6	1.7
<b>PISTON: TOTAL</b>								
ESTIMATED POPULATION	6,266	58,253	22,998	121,184	128,879	112,991	74,637	24,832
% STANDARD ERROR	8.1	2.3	4.2	1.2	0.8	1.0	1.5	3.3
% WITH CAPABILITY	2.7	25.1	9.9	52.1	55.4	48.6	32.1	10.7



7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 2 OF

LONG RANGE NAVIGATION EQUIPMENT

AIRCRAFT TYPE	-----LORAN-----				OMEGA	OTHER LORNAV
	LORAN C	VFR ONLY	NAV IFR	APP IFR		
FIXED WING						
FIXED WING - PISTON						
1 ENG: 1-3 SEATS						
ESTIMATED POPULATION	26,978	16,648	581	288	32	38
% STANDARD ERROR	3.2	4.5	26.8	42.2	107.5	91.4
% WITH CAPABILITY	30.5	18.8	0.7	0.3	0.0	0.0
1 ENG: 4+ SEATS						
ESTIMATED POPULATION	62,221	54,186	6,957	3,231	79	137
% STANDARD ERROR	1.8	2.1	7.7	11.7	72.9	56.6
% WITH CAPABILITY	52.7	45.9	5.9	2.7	0.1	0.1
1 ENGINE: TOTAL						
ESTIMATED POPULATION	89,198	70,834	7,538	3,519	110	175
% STANDARD ERROR	1.6	1.9	7.4	11.3	60.4	48.6
% WITH CAPABILITY	43.2	34.3	3.7	1.7	0.1	0.1
2 ENG: 1-6 SEATS						
ESTIMATED POPULATION	10,302	8,047	2,223	843	24	159
% STANDARD ERROR	4.0	5.2	11.9	20.2	99.8	49.5
% WITH CAPABILITY	59.3	46.4	12.8	4.9	0.1	0.9
2 ENG: 7+ SEATS						
ESTIMATED POPULATION	4,943	3,635	1,140	476	44	177
% STANDARD ERROR	5.4	7.4	16.2	26.9	74.3	37.0
% WITH CAPABILITY	58.4	42.9	13.5	5.6	0.5	2.1
2 ENGINE: TOTAL						
ESTIMATED POPULATION	15,245	11,681	3,363	1,319	68	335
% STANDARD ERROR	3.2	4.3	9.6	16.2	59.6	30.5
% WITH CAPABILITY	59.0	45.2	13.0	5.1	0.3	1.3
PISTON: OTHER						
ESTIMATED POPULATION	160	69	13	13	0	0
% STANDARD ERROR	22.1	18.3	69.5	69.5	0.0	0.0
% WITH CAPABILITY	59.0	25.3	4.9	4.9	0.0	0.0
PISTON: TOTAL						
ESTIMATED POPULATION	104,604	82,584	10,914	4,851	178	511
% STANDARD ERROR	1.4	1.8	5.9	9.3	43.7	26.0
% WITH CAPABILITY	45.0	35.5	4.7	2.1	0.1	0.2

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 3 OF 5

AIRCRAFT TYPE	OTHER NAVIGATION EQUIPMENT					NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM	
FIXED WING						
FIXED WING - PISTON						
1 ENG: 1-3 SEATS	56	11	79	14	374	37,184
ESTIMATED POPULATION	81.5	149.7	69.5	146.6	35.4	2.0
% STANDARD ERROR	0.1	0.0	0.1	0.0	0.4	42.1
% WITH CAPABILITY						
1 ENG: 4+ SEATS	3,392	2,168	10,343	638	1,015	5,471
ESTIMATED POPULATION	11.0	13.3	5.8	26.5	19.9	7.4
% STANDARD ERROR	2.9	1.8	8.8	0.5	0.9	4.6
% WITH CAPABILITY						
1 ENGINE: TOTAL	3,449	2,179	10,422	651	1,389	42,656
ESTIMATED POPULATION	10.9	13.3	5.8	26.1	17.4	2.0
% STANDARD ERROR	1.7	1.1	5.1	0.3	0.7	20.7
% WITH CAPABILITY						
2 ENG: 1-6 SEATS	3,076	5,576	3,815	504	342	717
ESTIMATED POPULATION	10.0	5.9	9.1	26.0	30.7	21.8
% STANDARD ERROR	17.7	32.1	22.0	2.9	2.0	4.1
% WITH CAPABILITY						
2 ENG: 7+ SEATS	2,481	4,714	1,460	304	332	690
ESTIMATED POPULATION	9.0	4.9	14.3	31.0	31.5	17.2
% STANDARD ERROR	29.3	55.7	17.3	3.6	3.9	8.2
% WITH CAPABILITY						
2 ENGINE: TOTAL	5,557	10,290	5,275	808	674	1,407
ESTIMATED POPULATION	6.8	3.9	7.7	20.0	22.0	13.9
% STANDARD ERROR	21.5	39.8	20.4	3.1	2.6	5.5
% WITH CAPABILITY						
PISTON: OTHER	5	23	5	0	14	129
ESTIMATED POPULATION	243.6	66.9	243.6	0.0	50.1	21.3
% STANDARD ERROR	1.7	8.4	1.7	0.0	5.0	47.4
% WITH CAPABILITY						
PISTON: TOTAL	9,010	12,492	15,702	1,460	2,076	44,192
ESTIMATED POPULATION	5.9	4.0	4.6	16.1	13.7	2.0
% STANDARD ERROR	3.9	5.4	6.8	0.6	0.9	19.0
% WITH CAPABILITY						

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 4 OF 9

BASIC NAVIGATION EQUIPMENT

AIRCRAFT TYPE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
FIXED WING - TURBOPROP								
2 ENG: 1-12 SEATS								
ESTIMATED POPULATION	42	471	273	3,685	4,180	4,123	4,177	3,305
% STANDARD ERROR	53.7	20.8	27.1	3.2	1.8	2.1	1.9	3.8
% WITH CAPABILITY	0.9	10.5	6.1	82.2	93.3	92.0	93.2	73.7
2 ENG: 13+ SEATS								
ESTIMATED POPULATION	0	7	87	1,160	1,228	1,206	1,172	407
% STANDARD ERROR	0.0	102.4	33.0	2.5	1.2	2.6	3.7	14.2
% WITH CAPABILITY	0.0	0.6	7.0	92.6	98.0	96.3	93.5	32.5
2 ENGINE: TOTAL								
ESTIMATED POPULATION	42	478	360	4,845	5,408	5,330	5,348	3,712
% STANDARD ERROR	53.7	20.5	22.0	2.5	1.4	1.7	1.7	3.7
% WITH CAPABILITY	0.7	8.3	6.3	84.5	94.3	92.9	93.3	64.7
TURBOPROP: OTHER								
ESTIMATED POPULATION	1	16	4	322	299	320	290	73
% STANDARD ERROR	615.1	75.2	305.2	10.7	11.8	10.5	12.2	58.9
% WITH CAPABILITY	0.2	2.9	0.7	59.1	55.0	58.8	53.2	13.5
TURBOPROP: TOTAL								
ESTIMATED POPULATION	43	494	364	5,167	5,707	5,650	5,638	3,785
% STANDARD ERROR	54.4	20.0	22.1	2.4	1.5	1.7	1.7	3.8
% WITH CAPABILITY	0.7	7.9	5.8	82.3	90.9	90.0	89.8	60.3
FIXED WING - TURBOJET								
2 ENGINE TURBOJET								
ESTIMATED POPULATION	32	450	446	3,751	4,103	4,150	4,216	2,273
% STANDARD ERROR	59.9	19.8	20.2	2.7	1.7	1.6	1.5	6.0
% WITH CAPABILITY	0.7	10.3	10.2	85.6	93.6	94.7	96.2	51.8
TURBOJET: OTHER								
ESTIMATED POPULATION	0	31	43	465	453	460	490	262
% STANDARD ERROR	0.0	45.5	39.3	5.9	5.9	5.7	5.0	11.8
% WITH CAPABILITY	0.0	4.9	6.8	72.9	71.0	72.2	76.7	41.1
TURBOJET: TOTAL								
ESTIMATED POPULATION	32	481	489	4,217	4,556	4,610	4,706	2,535
% STANDARD ERROR	59.9	18.8	18.7	2.5	1.7	1.6	1.5	5.5
% WITH CAPABILITY	0.6	9.6	9.7	84.0	90.7	91.8	93.7	50.5

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

LONG RANGE NAVIGATION EQUIPMENT

AIRCRAFT TYPE	LORAN				OMEGA		OTHER LORNAV
	LORAN C	VTR ONLY	NAV IFR	APP IFR			
FIXED WING - TURBOPROP							
2 ENG: 1-12 SEATS							
ESTIMATED POPULATION	3,207	1,826	1,299	238	297	121	37.0
% STANDARD ERROR	4.3	8.2	10.9	24.7	20.7	37.0	2.7
% WITH CAPABILITY	71.6	40.7	29.0	5.3	6.6	2.7	
2 ENG: 13+ SEATS							
ESTIMATED POPULATION	407	225	227	122	156	97	49.2
% STANDARD ERROR	16.9	26.7	26.4	41.8	34.5	49.2	7.7
% WITH CAPABILITY	32.5	18.0	18.1	9.7	12.4	7.7	
2 ENGINE: TOTAL							
ESTIMATED POPULATION	3,614	2,051	1,526	360	453	218	30.0
% STANDARD ERROR	4.3	7.8	10.1	21.6	18.0	30.0	3.8
% WITH CAPABILITY	63.0	35.8	26.6	6.3	7.9	3.8	
TURBOPROP: OTHER							
ESTIMATED POPULATION	257	105	66	25	134	11	178.8
% STANDARD ERROR	19.6	42.1	60.5	115.1	32.5	178.8	1.9
% WITH CAPABILITY	47.2	19.4	12.2	4.6	24.6	1.9	
TURBOPROP: TOTAL							
ESTIMATED POPULATION	3,871	2,156	1,592	386	587	228	29.8
% STANDARD ERROR	4.2	7.7	10.0	21.6	15.8	29.8	3.6
% WITH CAPABILITY	61.7	34.3	25.4	6.1	9.3	3.6	
FIXED WING - TURBOJET							
2 ENGINE TURBOJET							
ESTIMATED POPULATION	2,186	844	1,574	358	2,341	839	10.8
% STANDARD ERROR	6.2	13.9	8.5	23.7	5.1	10.8	19.1
% WITH CAPABILITY	49.9	19.2	35.9	8.2	53.4	19.1	
TURBOJET: OTHER							
ESTIMATED POPULATION	163	41	108	45	307	316	9.7
% STANDARD ERROR	17.0	40.6	23.0	38.0	8.2	9.7	49.5
% WITH CAPABILITY	25.5	6.4	16.9	7.0	48.2	49.5	
TURBOJET: TOTAL							
ESTIMATED POPULATION	2,349	884	1,682	403	2,649	1,154	8.2
% STANDARD ERROR	5.9	13.4	8.1	21.4	4.6	8.2	23.0
% WITH CAPABILITY	46.8	17.6	33.5	8.0	52.8	23.0	

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 6 OF 9

AIRCRAFT TYPE	OTHER NAVIGATION EQUIPMENT					GPS SYSTEM	NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	CPWS SYSTEM	GPS SYSTEM		
FIXED WING - TURBOPROP							
2 ENG: 1-12 SEATS							
ESTIMATED POPULATION	3,725	4,085	894	634	138	270	
% STANDARD ERROR	3.1	2.0	13.0	17.4	32.2	27.4	
% WITH CAPABILITY	83.1	91.2	19.9	14.2	3.1	6.0	
2 ENG: 13+ SEATS							
ESTIMATED POPULATION	792	1,169	182	180	75	19	
% STANDARD ERROR	7.7	3.4	28.8	28.1	37.8	74.1	
% WITH CAPABILITY	63.2	93.3	14.5	14.4	6.0	1.5	
2 ENGINE: TOTAL							
ESTIMATED POPULATION	4,517	5,254	1,075	814	213	288	
% STANDARD ERROR	2.9	1.7	11.9	14.9	24.7	26.1	
% WITH CAPABILITY	78.8	91.6	18.8	14.2	3.7	5.0	
TURBOPROP: OTHER							
ESTIMATED POPULATION	59	155	38	32	14	148	
% STANDARD ERROR	61.3	22.1	89.6	100.0	155.7	21.1	
% WITH CAPABILITY	10.8	28.4	7.0	5.9	2.5	27.3	
TURBOPROP: TOTAL							
ESTIMATED POPULATION	4,576	5,409	1,114	846	226	437	
% STANDARD ERROR	3.0	1.8	11.9	14.9	25.1	18.7	
% WITH CAPABILITY	72.9	86.1	17.7	13.5	3.6	7.0	
FIXED WING - TURBOJET							
2 ENGINE TURBOJET							
ESTIMATED POPULATION	4,080	4,086	1,380	1,317	645	101	
% STANDARD ERROR	1.6	1.7	9.7	9.3	16.1	47.3	
% WITH CAPABILITY	93.1	93.2	31.5	30.0	14.7	2.3	
TURBOJET: OTHER							
ESTIMATED POPULATION	427	412	159	183	122	100	
% STANDARD ERROR	6.3	6.4	17.9	15.6	21.2	21.7	
% WITH CAPABILITY	66.9	64.5	25.0	28.6	19.1	15.7	
TURBOJET: TOTAL							
ESTIMATED POPULATION	4,507	4,498	1,540	1,499	767	201	
% STANDARD ERROR	1.5	1.7	8.9	8.4	14.0	26.1	
% WITH CAPABILITY	89.8	89.6	30.7	29.9	15.3	4.0	

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 7 OF 9

AIRCRAFT TYPE	BASIC NAVIGATION EQUIPMENT						
	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME RNAV
<b>FIXED WING: TOTAL</b>							
ESTIMATED POPULATION	6,341	59,228	23,851	130,567	139,142	123,251	31,151
% STANDARD ERROR	8.1	2.3	4.0	1.1	0.8	0.9	2.7
% WITH CAPABILITY	2.6	24.3	9.8	53.6	57.1	50.6	12.8
<b>ROTORCRAFT</b>							
<b>PISTON</b>							
ESTIMATED POPULATION	42	273	227	458	80	205	21
% STANDARD ERROR	64.7	30.5	30.0	22.6	50.0	36.2	125.9
% WITH CAPABILITY	0.7	4.7	3.9	7.8	1.4	3.5	0.4
<b>TURBINE</b>							
ESTIMATED POPULATION	63	815	109	2,262	1,340	2,525	622
% STANDARD ERROR	83.8	17.4	57.5	7.8	11.9	6.7	17.4
% WITH CAPABILITY	1.4	17.6	2.4	48.9	29.0	54.6	13.4
<b>ROTORCRAFT: TOTAL</b>							
ESTIMATED POPULATION	105	1,088	336	2,720	1,420	2,730	642
% STANDARD ERROR	56.4	15.1	27.5	7.5	11.6	6.8	17.3
% WITH CAPABILITY	1.0	10.4	3.2	26.0	13.6	26.1	6.1
<b>OTHER AIRCRAFT</b>							
ESTIMATED POPULATION	141	40	520	98	83	43	4
% STANDARD ERROR	31.1	42.7	23.0	33.2	42.0	74.6	241.6
% WITH CAPABILITY	1.3	0.4	4.8	0.9	0.8	0.4	0.0
<b>TOTAL</b>							
ESTIMATED POPULATION	6,587	60,356	24,707	133,385	140,646	126,024	31,798
% STANDARD ERROR	7.8	2.3	4.0	1.1	0.8	0.9	2.7
% WITH CAPABILITY	2.5	22.8	9.3	50.3	53.1	47.6	12.0

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 8 OF 9

LONG RANGE NAVIGATION EQUIPMENT

AIRCRAFT TYPE	LONG RANGE NAVIGATION EQUIPMENT					OTHER LENAV
	LORAN C	VFR ONLY	NAV IFR	APP IFR	OMEGA	
FIXED WING: TOTAL						
ESTIMATED POPULATION	110,824	85,625	14,188	5,640	3,414	1,894
& STANDARD ERROR	1.4	1.7	4.8	8.3	5.0	9.4
& WITH CAPABILITY	45.5	35.1	5.8	2.3	1.4	0.8
ROTORCRAFT						
PISTON						
ESTIMATED POPULATION	3,268	827	8	8	0	0
& STANDARD ERROR	5.6	16.3	114.3	114.3	0.0	0.0
& WITH CAPABILITY	55.9	14.1	0.1	0.1	0.0	0.0
TURBINE						
ESTIMATED POPULATION	3,714	2,999	223	71	5	5
& STANDARD ERROR	3.5	5.2	31.2	39.2	134.4	118.3
& WITH CAPABILITY	80.3	64.8	4.8	1.5	0.1	0.1
ROTORCRAFT: TOTAL						
ESTIMATED POPULATION	6,982	3,827	231	79	5	5
& STANDARD ERROR	3.2	5.4	30.4	37.1	134.4	118.3
& WITH CAPABILITY	66.7	36.5	2.2	0.8	0.0	0.0
OTHER AIRCRAFT						
ESTIMATED POPULATION	2,332	90	0	0	0	2
& STANDARD ERROR	8.4	35.2	0.0	0.0	0.0	390.9
& WITH CAPABILITY	21.6	0.8	0.0	0.0	0.0	0.0
TOTAL						
ESTIMATED POPULATION	120,138	89,542	14,419	5,720	3,418	1,901
& STANDARD ERROR	1.3	1.7	4.7	8.2	5.0	9.3
& WITH CAPABILITY	45.3	33.8	5.4	2.2	1.3	0.7

NOTE: COLUMN SUBTOTALS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.9 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 9 OF 9

AIRCRAFT TYPE	OTHER NAVIGATION EQUIPMENT					NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM	
FIXED WING: TOTAL						
ESTIMATED POPULATION	18,093	22,399	18,355	3,805	3,070	44,830
% STANDARD ERROR	3.1	2.3	4.1	7.7	10.0	2.0
% WITH CAPABILITY	7.4	9.2	7.5	1.6	1.3	18.4
ROTORCRAFT						
PISTON						
ESTIMATED POPULATION	3	3	6	0	41	4,260
% STANDARD ERROR	253.1	231.8	261.6	0.0	64.4	3.5
% WITH CAPABILITY	0.0	0.1	0.1	0.0	0.7	72.9
TURBINE						
ESTIMATED POPULATION	1,116	256	294	45	53	587
% STANDARD ERROR	11.2	17.5	27.6	75.7	38.5	17.6
% WITH CAPABILITY	24.1	5.5	6.4	1.0	1.2	12.7
ROTORCRAFT: TOTAL						
ESTIMATED POPULATION	1,118	260	300	45	94	4,847
% STANDARD ERROR	11.1	17.5	27.6	75.7	35.4	3.7
% WITH CAPABILITY	10.7	2.5	2.9	0.4	0.9	46.3
OTHER AIRCRAFT						
ESTIMATED POPULATION	78	26	0	0	14	9,939
% STANDARD ERROR	58.0	104.8	0.0	0.0	104.2	1.4
% WITH CAPABILITY	0.7	0.2	0.0	0.0	0.1	92.2
TOTAL						
ESTIMATED POPULATION	19,289	22,685	18,655	3,850	3,178	59,617
% STANDARD ERROR	3.0	2.3	4.1	7.7	9.8	1.5
% WITH CAPABILITY	7.3	8.6	7.0	1.5	1.2	22.5

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.10 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

PAGE 1 OF 6

BASIC NAVIGATION EQUIPMENT

PRIMARY USE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>EXECUTIVE</b>								
ESTIMATED POPULATION	192	1,367	907	8,992	10,290	10,323	9,894	6,288
% STANDARD ERROR	42.2	15.6	17.2	4.4	4.2	4.1	4.1	5.3
% WITH CAPABILITY	1.8	12.7	8.4	83.3	95.3	95.6	91.6	58.2
<b>BUSINESS</b>								
ESTIMATED POPULATION	1,246	8,634	3,900	23,983	30,095	28,070	23,357	10,981
% STANDARD ERROR	18.4	6.8	10.3	3.7	3.2	3.3	3.6	5.3
% WITH CAPABILITY	3.7	25.5	11.5	70.9	88.9	82.9	69.0	32.4
<b>PERSONAL</b>								
ESTIMATED POPULATION	3,554	33,620	15,765	66,103	70,053	59,053	35,799	9,979
% STANDARD ERROR	10.8	3.2	5.1	2.0	1.8	2.1	3.0	6.2
% WITH CAPABILITY	2.9	27.3	12.8	53.7	56.9	48.0	29.1	8.1
<b>INSTRUCTIONAL</b>								
ESTIMATED POPULATION	169	4,793	878	12,361	9,451	9,277	4,946	635
% STANDARD ERROR	39.7	10.1	24.1	5.9	6.9	7.0	9.6	26.1
% WITH CAPABILITY	0.9	24.7	4.5	63.8	48.8	47.9	25.5	3.3
<b>AERIAL APPLICATION</b>								
ESTIMATED POPULATION	11	471	132	866	655	725	394	13
% STANDARD ERROR	169.4	28.6	51.3	18.8	20.8	21.4	28.8	79.6
% WITH CAPABILITY	0.1	6.2	1.7	11.4	8.6	9.5	5.2	0.2
<b>AERIAL OBSERVATION</b>								
ESTIMATED POPULATION	180	1,412	160	2,814	2,966	2,855	1,676	453
% STANDARD ERROR	48.9	17.7	45.3	11.9	12.2	12.0	16.0	28.6
% WITH CAPABILITY	3.3	26.2	3.0	52.2	55.0	52.9	31.1	8.4
<b>OTHER WORK USE</b>								
ESTIMATED POPULATION	3	345	88	570	517	531	230	72
% STANDARD ERROR	275.7	36.3	51.7	21.8	23.8	21.9	24.2	39.6
% WITH CAPABILITY	0.2	19.6	5.0	32.3	29.3	30.1	13.0	4.1
<b>COMMUTER AIR CARRIER</b>								
ESTIMATED POPULATION	0	119	0	679	824	832	656	134
% STANDARD ERROR	0.0	42.2	0.0	15.5	13.8	13.7	15.8	53.0
% WITH CAPABILITY	0.0	12.9	0.0	73.5	89.2	90.0	70.9	14.5

7.10 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

PAGE 2 OF 6

LONG RANGE NAVIGATION EQUIPMENT

PRIMARY USE	LORAN					OMEGA	OTHER LNAV
	LORAN C	VTR ONLY	NAV IFR	APP IFR			
<b>EXECUTIVE</b>							
ESTIMATED POPULATION	6,369	4,152	2,539	683		2,337	1,006
% STANDARD ERROR	5.8	8.1	8.1	17.6		6.2	9.9
% WITH CAPABILITY	59.0	38.5	23.5	6.3		21.6	9.3
<b>BUSINESS</b>							
ESTIMATED POPULATION	20,123	16,527	4,322	1,676		305	207
% STANDARD ERROR	4.1	4.7	9.1	15.2		25.7	36.3
% WITH CAPABILITY	59.5	48.8	12.8	5.0		0.9	0.6
<b>PERSONAL</b>							
ESTIMATED POPULATION	59,033	51,473	5,132	2,294		184	131
% STANDARD ERROR	2.2	2.4	9.1	14.0		40.0	50.1
% WITH CAPABILITY	48.0	41.8	4.2	1.9		0.1	0.1
<b>INSTRUCTIONAL</b>							
ESTIMATED POPULATION	4,509	3,764	414	303		3	27
% STANDARD ERROR	10.1	11.3	33.8	39.2		214.9	63.8
% WITH CAPABILITY	23.3	19.4	2.1	1.6		0.0	0.1
<b>AERIAL APPLICATION</b>							
ESTIMATED POPULATION	3,527	1,030	12	8		6	0
% STANDARD ERROR	8.1	16.5	102.5	127.2		0.0	0.0
% WITH CAPABILITY	46.3	13.5	0.2	0.1		0.1	0.0
<b>AERIAL OBSERVATION</b>							
ESTIMATED POPULATION	3,400	2,909	349	68		29	170
% STANDARD ERROR	10.8	11.7	34.5	72.0		111.5	43.4
% WITH CAPABILITY	63.1	53.9	6.5	1.3		0.5	3.1
<b>OTHER WORK USE</b>							
ESTIMATED POPULATION	703	497	24	26		5	0
% STANDARD ERROR	20.0	21.0	79.7	81.2		208.4	0.0
% WITH CAPABILITY	39.9	28.2	1.4	1.5		0.3	0.0
<b>COMPUTER AIR CARRIER</b>							
ESTIMATED POPULATION	319	171	81	61		10	0
% STANDARD ERROR	25.8	35.3	49.7	53.6		174.8	0.0
% WITH CAPABILITY	34.6	18.5	8.8	6.6		1.0	0.0

7.10 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

PAGE 3 OF 6

PRIMARY USE	OTHER NAVIGATION EQUIPMENT					GPS SYSTEM	GPS SYSTEM	NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM			
EXECUTIVE								
ESTIMATED POPULATION	7,015	8,092	3,166	1,586	530	142		
& STANDARD ERROR	3.9	4.0	8.5	9.7	16.4	42.3		
& WITH CAPABILITY	65.0	74.9	29.3	14.7	4.9	1.3		
BUSINESS								
ESTIMATED POPULATION	4,727	6,105	6,426	1,021	966	651		
& STANDARD ERROR	8.2	6.6	7.4	17.8	19.5	24.0		
& WITH CAPABILITY	14.0	18.0	19.0	3.0	2.9	1.9		
PERSONAL								
ESTIMATED POPULATION	3,182	2,958	7,178	367	765	17,475		
& STANDARD ERROR	11.1	11.1	7.5	31.7	22.8	3.2		
& WITH CAPABILITY	2.6	2.4	5.8	0.3	0.6	14.2		
INSTRUCTIONAL								
ESTIMATED POPULATION	240	407	236	78	32	1,788		
& STANDARD ERROR	29.2	26.1	47.9	74.8	30.3	12.8		
& WITH CAPABILITY	1.2	2.1	1.2	0.4	0.2	9.2		
AERIAL APPLICATION								
ESTIMATED POPULATION	46	51	39	3	99	5,990		
& STANDARD ERROR	36.9	51.1	82.8	131.2	60.9	3.4		
& WITH CAPABILITY	0.6	0.7	0.5	0.0	1.3	78.6		
AERIAL OBSERVATION								
ESTIMATED POPULATION	278	145	240	177	162	680		
& STANDARD ERROR	29.6	33.8	35.0	46.7	47.8	20.8		
& WITH CAPABILITY	5.2	2.7	4.4	3.3	3.0	12.6		
OTHER WORK USE								
ESTIMATED POPULATION	149	35	16	3	17	600		
& STANDARD ERROR	28.4	53.5	102.8	160.9	85.8	23.3		
& WITH CAPABILITY	8.4	2.0	0.9	0.2	1.0	34.1		
COMPUTER AIR CARRIER								
ESTIMATED POPULATION	352	619	30	77	17	69		
& STANDARD ERROR	20.6	15.1	94.9	16.2	119.9	58.4		
& WITH CAPABILITY	38.1	67.0	3.2	8.3	1.9	7.4		

7.10 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

PAGE 4 OF 6

PRIMARY USE	BASIC NAVIGATION EQUIPMENT							
	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
AIR TAXI								
ESTIMATED POPULATION	0	592	573	4,425	4,594	4,932	4,037	1,445
% STANDARD ERROR	0.0	23.3	25.4	8.0	7.8	7.6	8.3	13.9
% WITH CAPABILITY	0.0	10.3	10.0	77.1	80.0	85.9	70.3	25.2
OTHER								
ESTIMATED POPULATION	55	661	292	2,316	1,809	1,783	1,721	527
% STANDARD ERROR	79.2	22.7	35.5	11.0	12.7	12.1	12.3	20.7
% WITH CAPABILITY	1.3	15.8	7.0	55.3	43.2	42.6	41.1	12.6
INACTIVE								
ESTIMATED POPULATION	1,125	8,228	1,891	9,912	9,086	7,367	3,527	1,197
% STANDARD ERROR	19.0	5.8	14.1	5.1	4.5	5.0	7.5	14.3
% WITH CAPABILITY	2.2	15.7	3.6	19.0	17.4	14.1	6.7	2.3
TOTAL								
ESTIMATED POPULATION	6,587	60,356	24,707	133,385	140,646	126,024	86,427	31,798
% STANDARD ERROR	7.8	2.3	4.0	1.1	0.8	0.9	1.3	2.7
% WITH CAPABILITY	2.5	22.8	9.3	50.3	53.1	47.6	32.6	12.0

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.10 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

PAGE 5 OF 6

LONG RANGE NAVIGATION EQUIPMENT

PRIMARY USE	LONG RANGE NAVIGATION EQUIPMENT					OMEGA LRNAV
	LORAN C	VTR ONLY	NAV IFR	APP IFR		
AIR TAXI						
ESTIMATED POPULATION	3,230	2,517	603	50	263	55
% STANDARD ERROR	9.5	11.0	21.9	87.4	28.8	65.8
% WITH CAPABILITY	56.3	43.9	10.5	0.9	4.6	1.0
OTHER						
ESTIMATED POPULATION	1,832	1,340	234	152	194	195
% STANDARD ERROR	12.0	14.5	33.0	41.9	27.3	34.7
% WITH CAPABILITY	43.8	32.0	5.6	3.6	4.6	4.7
INACTIVE						
ESTIMATED POPULATION	16,972	4,807	674	376	57	69
% STANDARD ERROR	3.6	8.2	20.1	26.5	23.9	26.2
% WITH CAPABILITY	32.5	9.2	1.3	0.7	0.1	0.1
TOTAL						
ESTIMATED POPULATION	120,138	89,542	14,419	5,720	3,418	1,901
% STANDARD ERROR	1.3	1.7	4.7	8.2	5.0	9.3
% WITH CAPABILITY	45.3	33.8	5.4	2.2	1.3	0.7

NOTE: COLUMN SUBTOTALS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.10 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY PRIMARY USE

PAGE 6 OF 6

PRIMARY USE	OTHER NAVIGATION EQUIPMENT						GPS SYSTEM	GPS SYSTEM	NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPWS SYSTEM	GPWS SYSTEM			
AIR TAXI									
ESTIMATED POPULATION	1,621	2,441	568	249	249	185	271		
% STANDARD ERROR	12.1	10.4	23.4	31.1	31.1	38.7	35.0		
% WITH CAPABILITY	28.2	42.5	9.9	4.3	4.3	3.2	4.7		
OTHER									
ESTIMATED POPULATION	870	852	243	125	125	123	948		
% STANDARD ERROR	16.1	18.2	35.4	43.8	43.8	33.2	18.0		
% WITH CAPABILITY	20.8	20.4	5.8	3.0	3.0	2.9	22.6		
INACTIVE									
ESTIMATED POPULATION	747	886	450	134	134	263	31,595		
% STANDARD ERROR	16.5	10.5	21.7	42.9	42.9	32.2	1.8		
% WITH CAPABILITY	1.4	1.7	0.9	0.3	0.3	0.5	60.4		
TOTAL									
ESTIMATED POPULATION	19,289	22,685	18,655	3,850	3,850	3,178	59,617		
% STANDARD ERROR	3.0	2.3	4.1	7.7	7.7	9.8	1.5		
% WITH CAPABILITY	7.3	8.6	7.0	1.5	1.5	1.2	22.5		

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.11 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF

BASIC NAVIGATION EQUIPMENT

REGION	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>ALASKAN</b>								
ESTIMATED POPULATION	415	2,501	671	3,189	2,879	3,881	1,302	238
% STANDARD ERROR	30.1	12.3	23.4	10.2	11.0	9.3	16.5	37.2
% WITH CAPABILITY	4.5	26.8	7.2	34.2	30.9	41.6	14.0	2.6
<b>CENTRAL</b>								
ESTIMATED POPULATION	306	3,383	912	7,138	7,374	6,833	4,469	1,868
% STANDARD ERROR	39.4	11.4	22.1	7.7	7.5	7.8	9.3	13.9
% WITH CAPABILITY	2.0	22.0	5.9	46.4	47.9	44.4	29.0	12.1
<b>EASTERN</b>								
ESTIMATED POPULATION	871	6,682	3,448	16,122	17,026	14,862	9,752	3,390
% STANDARD ERROR	21.7	8.1	11.2	5.0	4.8	5.1	6.2	9.7
% WITH CAPABILITY	2.9	22.3	11.5	53.9	56.9	49.6	32.6	11.3
<b>GREAT LAKES</b>								
ESTIMATED POPULATION	1,257	10,717	3,936	22,820	23,756	21,376	14,622	6,496
% STANDARD ERROR	17.9	6.3	10.5	4.1	4.0	4.2	5.0	7.3
% WITH CAPABILITY	2.7	22.7	8.4	48.4	50.4	45.3	31.0	13.8
<b>NEW ENGLAND</b>								
ESTIMATED POPULATION	300	2,817	1,267	5,602	5,912	5,449	3,256	1,053
% STANDARD ERROR	39.2	12.7	18.9	8.9	8.6	9.0	11.5	19.4
% WITH CAPABILITY	2.9	27.1	12.2	53.9	56.9	52.5	31.4	10.1
<b>NORTHWEST MOUNTAIN</b>								
ESTIMATED POPULATION	684	6,426	2,275	12,011	12,995	12,111	7,737	2,600
% STANDARD ERROR	26.0	8.1	13.7	5.7	5.6	5.7	7.1	11.8
% WITH CAPABILITY	2.5	23.8	8.4	44.6	48.2	44.9	28.7	9.6
<b>SOUTHERN</b>								
ESTIMATED POPULATION	1,076	9,100	4,375	22,944	25,021	23,193	15,043	5,752
% STANDARD ERROR	20.2	6.9	9.7	4.1	3.8	4.0	4.9	7.6
% WITH CAPABILITY	2.5	21.2	10.2	53.6	58.4	54.1	35.1	13.4
<b>SOUTHWESTERN</b>								
ESTIMATED POPULATION	774	7,522	3,363	17,198	18,304	16,526	12,154	4,833
% STANDARD ERROR	23.5	7.7	11.5	4.7	4.5	4.7	5.5	8.6
% WITH CAPABILITY	2.2	21.6	9.7	49.4	52.6	47.5	34.9	13.9

7.11 1991 GENERAL AVIATION AIRCRAFT WITH BAL'C, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 6

LONG RANGE NAVIGATION EQUIPMENT

REGION	LORAN					NAV IFR	APP IFR		OMEGA	OTHER LORNAV
	LORAN C	VFR ONLY	LORAN							
ALASKAN										
ESTIMATED POPULATION	4,185	3,765			103		17		14	9
‡ STANDARD ERROR	8.6	9.2			58.0		60.8		88.6	121.5
‡ WITH CAPABILITY	44.9	40.4			1.1		0.2		0.1	0.1
CENTRAL										
ESTIMATED POPULATION	6,911	5,011			627		297		214	108
‡ STANDARD ERROR	7.7	9.3			22.5		38.3		30.2	51.8
‡ WITH CAPABILITY	44.9	32.6			4.1		1.9		1.4	0.7
EASTERN										
ESTIMATED POPULATION	13,807	9,991			1,895		423		654	375
‡ STANDARD ERROR	5.3	6.4			13.8		27.8		15.8	20.2
‡ WITH CAPABILITY	46.1	33.4			6.3		1.4		2.2	1.3
GREAT LAKES										
ESTIMATED POPULATION	20,868	15,494			2,572		696		598	342
‡ STANDARD ERROR	4.3	5.1			11.6		22.1		17.4	22.6
‡ WITH CAPABILITY	44.3	32.9			5.5		1.5		1.3	0.7
NEW ENGLAND										
ESTIMATED POPULATION	5,507	4,546			550		188		102	88
‡ STANDARD ERROR	8.8	9.8			27.9		50.8		51.3	61.9
‡ WITH CAPABILITY	53.0	43.8			5.3		1.8		1.0	0.8
NORTHWEST MOUNTAIN										
ESTIMATED POPULATION	11,366	7,981			1,346		339		320	113
‡ STANDARD ERROR	5.8	7.0			16.9		35.9		25.5	42.6
‡ WITH CAPABILITY	42.2	29.6			5.0		1.3		1.2	0.4
SOUTHERN										
ESTIMATED POPULATION	22,743	18,257			3,051		1,179		451	342
‡ STANDARD ERROR	4.1	4.7			10.7		18.1		19.9	28.9
‡ WITH CAPABILITY	53.1	42.6			7.1		2.8		1.1	0.8
SOUTHWESTERN										
ESTIMATED POPULATION	14,764	10,357			1,556		654		472	167
‡ STANDARD ERROR	5.0	6.2			14.6		25.9		15.5	28.1
‡ WITH CAPABILITY	42.4	29.7			4.5		1.9		1.4	0.5



7.11 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 3 OF 6

REGION	OTHER NAVIGATION EQUIPMENT					GPS SYSTEM	NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM		
ALASKAN							
ESTIMATED POPULATION	233	251	39	8	241	2,172	
% STANDARD ERROR	34.8	33.0	108.6	89.4	36.8	12.6	
% WITH CAPABILITY	2.5	2.7	0.4	0.1	2.6	23.3	
CENTRAL							
ESTIMATED POPULATION	1,136	1,446	932	146	232	4,516	
% STANDARD ERROR	16.3	14.1	19.8	42.5	43.4	8.7	
% WITH CAPABILITY	7.4	9.4	6.1	0.9	1.5	29.3	
EASTERN							
ESTIMATED POPULATION	2,621	3,189	3,251	730	581	6,716	
% STANDARD ERROR	9.6	9.0	10.7	18.9	21.5	6.8	
% WITH CAPABILITY	8.8	10.7	10.9	2.4	1.9	22.4	
GREAT LAKES							
ESTIMATED POPULATION	3,472	4,308	4,156	551	405	11,299	
% STANDARD ERROR	8.9	7.9	9.5	19.4	26.1	5.2	
% WITH CAPABILITY	7.4	9.1	8.8	1.2	0.9	24.0	
NEW ENGLAND							
ESTIMATED POPULATION	630	575	919	92	75	1,790	
% STANDARD ERROR	24.2	25.2	21.3	46.8	60.0	12.7	
% WITH CAPABILITY	6.1	5.5	8.8	0.9	0.7	17.2	
NORTHWEST MOUNTAIN							
ESTIMATED POPULATION	1,528	1,437	565	449	326	6,818	
% STANDARD ERROR	13.2	13.2	25.0	27.0	26.7	6.9	
% WITH CAPABILITY	5.7	5.3	2.1	1.7	1.2	25.3	
SOUTHERN							
ESTIMATED POPULATION	3,223	4,947	4,067	736	464	8,290	
% STANDARD ERROR	8.7	7.4	9.7	19.2	25.9	6.3	
% WITH CAPABILITY	7.5	11.5	9.5	1.7	1.1	19.4	
SOUTHWESTERN							
ESTIMATED POPULATION	3,035	3,307	2,943	474	112	8,437	
% STANDARD ERROR	9.3	9.1	11.0	23.4	47.6	5.9	
% WITH CAPABILITY	8.7	9.5	8.5	1.4	0.3	24.2	

7.11 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 4 OF 6

REGION	BASIC NAVIGATION EQUIPMENT							
	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
WESTERN-PACIFIC ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	904	11,209	4,460	26,361	27,379	21,793	18,092	5,567
	19.1	6.0	9.5	3.8	3.6	4.1	4.4	7.9
	1.9	23.2	9.2	54.6	56.7	45.2	37.5	11.5
TOTAL ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	6,587	60,356	24,707	133,385	140,646	126,024	86,427	31,798
	7.8	2.3	4.0	1.1	0.8	0.9	1.3	2.7
	2.5	22.8	9.3	50.3	53.1	47.6	32.6	12.0

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.11 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 5 OF 6

REGION	LONG RANGE NAVIGATION EQUIPMENT						OTHER LRNAV
	LORAN C	-----LORAN-----		NAV IFR	APP IFR	OMEGA	
		VFR ONLY					
WESTERN-PACIFIC							
ESTIMATED POPULATION	19,987	14,139	2,718	1,926	593	357	
% STANDARD ERROR	4.2	5.2	11.9	14.5	16.4	21.8	
% WITH CAPABILITY	41.4	29.3	5.6	4.0	1.2	0.7	
TOTAL							
ESTIMATED POPULATION	120,138	89,542	14,419	5,720	3,418	1,901	
% STANDARD ERROR	1.3	1.7	4.7	8.2	5.0	9.3	
% WITH CAPABILITY	45.3	33.8	5.4	2.2	1.3	0.7	

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.11 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 6 OF 6

REGION	OTHER NAVIGATION EQUIPMENT					GPS SYSTEM	GPS SYSTEM	NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPWS SYSTEM			
WESTERN-PACIFIC ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	3,412	3,226	1,783	665	743	9,580		
	9.3	8.8	14.5	20.1	22.7	5.4		
	7.1	6.7	3.7	1.4	1.5	19.9		
TOTAL ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	19,289	22,685	18,655	3,850	3,178	59,617		
	3.0	2.3	4.1	7.7	9.8	1.5		
	7.3	8.6	7.0	1.5	1.2	22.5		

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 21

BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>ALABAMA</b>								
ESTIMATED POPULATION	90	621	376	2,065	2,273	1,949	1,376	341
% STANDARD ERROR	77.0	28.1	34.7	14.3	13.9	14.8	17.4	28.6
% WITH CAPABILITY	2.2	15.4	9.3	51.3	56.4	48.4	34.2	8.5
<b>ALASKA</b>								
ESTIMATED POPULATION	415	2,501	671	3,189	2,879	3,881	1,302	238
% STANDARD ERROR	30.1	12.3	23.4	10.2	11.0	9.3	16.5	37.2
% WITH CAPABILITY	4.5	26.8	7.2	34.2	30.9	41.6	14.0	2.6
<b>ARIZONA</b>								
ESTIMATED POPULATION	168	1,422	803	3,573	3,843	2,982	2,374	659
% STANDARD ERROR	42.4	17.8	23.9	10.8	10.4	11.6	12.9	24.0
% WITH CAPABILITY	2.5	21.6	12.2	54.3	58.4	45.3	36.1	10.0
<b>ARKANSAS</b>								
ESTIMATED POPULATION	54	433	125	1,345	1,359	1,261	880	278
% STANDARD ERROR	90.5	33.3	55.1	18.0	17.9	18.6	21.5	34.7
% WITH CAPABILITY	1.9	15.4	4.5	47.8	48.3	44.8	31.3	9.9
<b>CALIFORNIA</b>								
ESTIMATED POPULATION	713	9,216	3,404	20,969	22,042	17,623	14,623	4,565
% STANDARD ERROR	21.8	6.7	10.7	4.3	4.1	4.6	5.0	8.9
% WITH CAPABILITY	1.9	23.9	8.8	54.5	57.3	45.8	38.0	11.9
<b>COLORADO</b>								
ESTIMATED POPULATION	70	1,075	465	2,703	3,059	2,743	1,919	928
% STANDARD ERROR	85.7	20.4	30.9	12.6	12.0	12.5	14.9	21.0
% WITH CAPABILITY	1.3	19.4	8.4	48.7	55.2	49.5	34.6	16.7
<b>CONNECTICUT</b>								
ESTIMATED POPULATION	127	559	317	1,356	1,496	1,393	972	392
% STANDARD ERROR	67.2	28.7	36.7	18.5	17.6	18.2	21.9	33.9
% WITH CAPABILITY	5.4	23.9	13.6	57.9	63.9	59.5	41.5	16.7
<b>DELAWARE</b>								
ESTIMATED POPULATION	95	158	121	772	823	747	571	231
% STANDARD ERROR	56.6	49.0	53.0	22.7	21.7	23.0	24.9	35.4
% WITH CAPABILITY	8.4	14.0	10.7	68.1	72.6	65.9	50.4	20.4

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 21

LONG RANGE NAVIGATION EQUIPMENT

STATE	LORAN					OMEGA		OTHER LENAV
	LORAN C	VFR ONLY	NAV IFR	APP IFR				
ALABAMA								
ESTIMATED POPULATION	2,357	1,911	306	23		38		8
% STANDARD ERROR	13.5	15.4	34.5	89.5		68.3		176.4
% WITH CAPABILITY	58.5	47.5	7.6	0.6		1.0		0.2
ALASKA								
ESTIMATED POPULATION	4,185	3,765	103	17		14		9
% STANDARD ERROR	8.6	9.2	58.0	60.8		88.6		121.5
% WITH CAPABILITY	44.9	40.4	1.1	0.2		0.1		0.1
ARIZONA								
ESTIMATED POPULATION	2,028	1,394	238	213		82		29
% STANDARD ERROR	13.7	17.1	41.9	44.3		43.0		97.0
% WITH CAPABILITY	30.8	21.2	3.6	3.2		1.2		0.4
ARKANSAS								
ESTIMATED POPULATION	1,462	827	164	74		16		4
% STANDARD ERROR	16.3	23.0	44.9	86.0		69.0		161.2
% WITH CAPABILITY	52.0	29.4	5.8	2.6		0.6		0.1
CALIFORNIA								
ESTIMATED POPULATION	16,941	12,035	2,360	1,658		470		266
% STANDARD ERROR	4.6	5.6	12.9	15.6		18.7		21.4
% WITH CAPABILITY	44.0	31.3	6.1	4.3		1.2		0.7
COLORADO								
ESTIMATED POPULATION	2,014	1,282	418	149		154		21
% STANDARD ERROR	14.2	18.0	31.3	54.3		39.9		96.3
% WITH CAPABILITY	36.3	23.1	7.5	2.7		2.8		0.4
CONNECTICUT								
ESTIMATED POPULATION	1,004	788	100	60		29		5
% STANDARD ERROR	19.9	23.4	65.1	90.2		75.8		152.4
% WITH CAPABILITY	42.9	33.7	4.3	2.6		1.2		0.2
DELAWARE								
ESTIMATED POPULATION	476	426	54	4		86		14
% STANDARD ERROR	27.2	29.5	68.8	92.0		33.2		72.3
% WITH CAPABILITY	42.0	37.6	4.8	0.3		7.6		1.2

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 21

STATE	OTHER NAVIGATION EQUIPMENT					GPS SYSTEM	NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM		
ALABAMA							
ESTIMATED POPULATION	245	446	391	34	55	857	
% STANDARD ERROR	30.0	27.3	32.2	88.1	90.7	20.0	
% WITH CAPABILITY	6.1	11.1	9.7	0.8	1.4	21.3	
ALASKA							
ESTIMATED POPULATION	233	251	39	8	241	2,172	
% STANDARD ERROR	34.8	33.0	108.6	89.4	36.8	12.6	
% WITH CAPABILITY	2.5	2.7	0.4	0.1	2.6	23.3	
ARIZONA							
ESTIMATED POPULATION	435	384	382	48	256	1,460	
% STANDARD ERROR	25.5	26.8	32.7	77.0	37.9	14.2	
% WITH CAPABILITY	6.6	5.8	5.8	0.7	3.9	22.2	
ARKANSAS							
ESTIMATED POPULATION	200	307	231	17	12	892	
% STANDARD ERROR	36.6	31.4	41.6	97.6	102.4	19.6	
% WITH CAPABILITY	7.1	10.9	8.2	0.6	0.4	31.7	
CALIFORNIA							
ESTIMATED POPULATION	2,806	2,616	1,357	586	458	7,460	
% STANDARD ERROR	10.4	10.0	16.5	21.7	29.7	6.2	
% WITH CAPABILITY	7.3	6.8	3.5	1.5	1.2	19.4	
COLORADO							
ESTIMATED POPULATION	279	334	188	186	140	1,410	
% STANDARD ERROR	32.3	28.4	47.3	42.7	43.5	15.2	
% WITH CAPABILITY	5.0	6.0	3.4	3.3	2.5	25.4	
CONNECTICUT							
ESTIMATED POPULATION	280	239	332	48	5	370	
% STANDARD ERROR	40.0	43.0	38.2	66.0	200.5	23.1	
% WITH CAPABILITY	12.0	10.2	14.2	2.0	0.2	15.8	
DELAWARE							
ESTIMATED POPULATION	121	166	134	16	65	92	
% STANDARD ERROR	38.4	29.6	55.3	86.0	69.0	49.3	
% WITH CAPABILITY	10.7	14.7	11.8	1.4	5.7	8.1	

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 21

BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
DISTRICT OF COLUMBIA								
ESTIMATED POPULATION	0	21	0	15	32	32	12	5
% STANDARD ERROR	0.0	163.8	0.0	106.6	116.0	116.0	124.9	175.1
% WITH CAPABILITY	0.0	20.4	0.0	13.9	30.5	30.5	11.3	5.2
FLORIDA								
ESTIMATED POPULATION	449	3,901	1,836	8,749	10,106	9,230	5,872	2,431
% STANDARD ERROR	30.5	10.5	14.5	6.8	6.3	6.6	8.0	12.5
% WITH CAPABILITY	2.7	23.6	11.1	53.0	61.2	55.9	35.5	14.7
GEORGIA								
ESTIMATED POPULATION	87	960	704	3,476	3,383	3,205	2,129	724
% STANDARD ERROR	71.6	21.8	24.1	11.0	11.2	11.4	13.8	21.6
% WITH CAPABILITY	1.5	16.1	11.8	58.4	56.9	53.9	35.8	12.2
HAWAII								
ESTIMATED POPULATION	0	101	42	297	299	286	279	20
% STANDARD ERROR	0.0	53.3	89.6	37.8	37.5	37.9	42.3	133.2
% WITH CAPABILITY	0.0	15.6	6.5	45.8	46.2	44.2	43.1	3.0
IDAHO								
ESTIMATED POPULATION	63	565	218	1,287	1,284	1,126	751	271
% STANDARD ERROR	84.6	28.1	44.6	17.7	18.0	18.7	22.3	33.1
% WITH CAPABILITY	2.6	23.6	9.1	53.8	53.7	47.0	31.4	11.3
ILLINOIS								
ESTIMATED POPULATION	360	1,675	908	4,723	5,109	4,598	3,516	1,689
% STANDARD ERROR	30.5	16.9	23.1	9.6	9.2	9.6	10.7	15.1
% WITH CAPABILITY	4.2	19.3	10.5	54.5	59.0	53.1	40.6	19.5
INDIANA								
ESTIMATED POPULATION	47	1,055	290	2,402	2,546	2,280	1,686	680
% STANDARD ERROR	98.5	20.6	37.9	13.4	13.1	13.5	15.4	22.8
% WITH CAPABILITY	1.0	22.7	6.2	51.7	54.8	49.1	36.3	14.7
IOWA								
ESTIMATED POPULATION	74	756	112	1,526	1,597	1,561	998	378
% STANDARD ERROR	77.6	24.6	47.2	16.9	16.5	16.7	20.4	30.9
% WITH CAPABILITY	2.2	22.1	3.3	44.7	46.7	45.7	29.2	11.1



7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 5 OF 21

STATE	LONG RANGE NAVIGATION EQUIPMENT					OMEGA	OTHER LRNAV
	LORAN C	LORAN		NAV IFR	APP IFR		
		VFR ONLY					
DISTRICT OF COLUMBIA							
ESTIMATED POPULATION	63	4		2	0	9	9
% STANDARD ERROR	73.2	156.1		386.3	0.0	142.7	142.7
% WITH CAPABILITY	60.0	4.0		1.7	0.0	8.3	8.3
FLORIDA							
ESTIMATED POPULATION	8,931	7,219		1,265	683	64	204
% STANDARD ERROR	6.7	7.6		16.9	23.9	40.9	38.8
% WITH CAPABILITY	54.1	43.7		7.7	4.1	0.4	1.2
GEORGIA							
ESTIMATED POPULATION	3,174	2,626		458	182	93	46
% STANDARD ERROR	11.4	12.8		30.1	52.6	40.7	80.4
% WITH CAPABILITY	53.3	44.1		7.7	3.1	1.6	0.8
HAWAII							
ESTIMATED POPULATION	159	86		7	4	5	5
% STANDARD ERROR	51.2	70.8		234.2	332.3	209.5	173.7
% WITH CAPABILITY	24.5	13.4		1.1	0.6	0.7	0.7
IDAHO							
ESTIMATED POPULATION	1,287	1,052		39	2	28	36
% STANDARD ERROR	17.8	19.9		80.8	163.7	91.2	91.8
% WITH CAPABILITY	53.8	44.0		1.6	0.1	1.2	1.5
ILLINOIS							
ESTIMATED POPULATION	4,317	3,370		563	161	155	116
% STANDARD ERROR	9.8	11.5		24.2	43.1	29.8	41.3
% WITH CAPABILITY	49.9	38.9		6.5	1.9	1.8	1.3
INDIANA							
ESTIMATED POPULATION	2,149	1,494		266	19	94	34
% STANDARD ERROR	13.6	16.7		39.6	136.8	55.5	63.6
% WITH CAPABILITY	46.3	32.2		5.7	0.4	2.0	0.7
IOWA							
ESTIMATED POPULATION	1,706	1,363		91	78	57	4
% STANDARD ERROR	15.8	17.9		51.6	79.5	60.6	146.8
% WITH CAPABILITY	49.9	39.9		2.7	2.3	1.7	0.1

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 6 OF 21

STATE	OTHER				NAVIGATION		EQUIPMENT	
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM	NO NAV EQ		
DISTRICT OF COLUMBIA								
ESTIMATED POPULATION	10	9	10	9	0	69		
% STANDARD ERROR	130.1	142.7	135.5	142.7	0.0	68.1		
% WITH CAPABILITY	9.6	8.3	10.0	8.3	0.0	65.7		
FLORIDA								
ESTIMATED POPULATION	1,034	2,010	1,672	432	150	3,069		
% STANDARD ERROR	16.2	12.9	15.3	27.1	48.4	10.8		
% WITH CAPABILITY	6.3	12.2	10.1	2.6	0.9	18.6		
GEORGIA								
ESTIMATED POPULATION	474	659	661	89	68	1,202		
% STANDARD ERROR	24.3	21.0	24.8	48.9	58.0	16.5		
% WITH CAPABILITY	8.0	11.1	11.1	1.5	1.2	20.2		
HAWAII								
ESTIMATED POPULATION	38	26	2	7	17	159		
% STANDARD ERROR	89.8	110.6	312.6	163.7	121.2	44.6		
% WITH CAPABILITY	5.9	3.9	0.4	1.1	2.6	24.6		
IDAHO								
ESTIMATED POPULATION	268	204	117	61	40	499		
% STANDARD ERROR	32.2	33.6	54.0	74.0	51.3	25.8		
% WITH CAPABILITY	11.2	8.5	4.9	2.6	1.7	20.8		
ILLINOIS								
ESTIMATED POPULATION	897	1,161	1,262	109	92	1,732		
% STANDARD ERROR	19.1	17.2	17.7	37.3	43.4	13.7		
% WITH CAPABILITY	10.4	13.4	14.6	1.3	1.1	20.0		
INDIANA								
ESTIMATED POPULATION	427	474	534	156	2	1,010		
% STANDARD ERROR	25.3	23.8	26.6	39.4	382.9	18.2		
% WITH CAPABILITY	9.2	10.2	11.5	3.4	0.1	21.7		
IOWA								
ESTIMATED POPULATION	258	347	148	23	7	1,010		
% STANDARD ERROR	36.2	30.8	49.7	86.9	116.8	18.6		
% WITH CAPABILITY	7.5	10.2	4.3	0.7	0.2	29.5		

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 21

BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>KANSAS</b>								
ESTIMATED POPULATION	43	1,034	227	2,289	2,459	2,169	1,481	635
% STANDARD ERROR	97.0	21.0	42.9	13.9	13.4	14.1	16.7	24.6
% WITH CAPABILITY	1.0	22.9	5.0	50.6	54.3	47.9	32.7	14.0
<b>KENTUCKY</b>								
ESTIMATED POPULATION	121	426	93	1,017	991	846	635	270
% STANDARD ERROR	65.6	35.0	62.4	20.9	20.7	22.3	24.7	36.5
% WITH CAPABILITY	6.2	21.8	4.8	52.2	50.8	43.4	32.6	13.9
<b>LOUISIANA</b>								
ESTIMATED POPULATION	125	806	276	1,597	1,787	1,896	994	253
% STANDARD ERROR	64.5	23.8	41.2	16.1	15.3	14.5	19.8	34.7
% WITH CAPABILITY	3.6	23.2	7.9	45.9	51.4	54.5	28.6	7.3
<b>MAINE</b>								
ESTIMATED POPULATION	41	343	99	770	682	610	280	119
% STANDARD ERROR	100.2	34.6	62.7	24.4	26.2	27.0	38.0	58.2
% WITH CAPABILITY	2.6	21.7	6.3	48.9	43.3	38.7	17.8	7.6
<b>MARYLAND</b>								
ESTIMATED POPULATION	97	786	411	2,045	1,990	1,850	1,011	295
% STANDARD ERROR	72.3	24.4	32.8	14.7	14.9	15.5	20.7	36.9
% WITH CAPABILITY	3.0	24.1	12.6	62.7	61.0	56.7	31.0	9.0
<b>MASSACHUSETTS</b>								
ESTIMATED POPULATION	100	965	353	1,975	2,201	2,136	1,092	342
% STANDARD ERROR	60.2	21.8	37.1	15.4	14.4	14.6	20.2	34.1
% WITH CAPABILITY	2.9	28.0	10.3	57.4	64.0	62.1	31.8	10.0
<b>MICHIGAN</b>								
ESTIMATED POPULATION	255	2,193	731	4,819	4,809	4,231	2,951	1,230
% STANDARD ERROR	41.4	14.0	24.2	9.5	9.4	10.0	11.5	17.4
% WITH CAPABILITY	2.8	24.1	8.0	52.9	52.8	46.5	32.4	13.5
<b>MINNESOTA</b>								
ESTIMATED POPULATION	45	1,488	655	2,370	2,364	2,252	1,362	542
% STANDARD ERROR	92.7	16.7	25.1	13.6	13.7	13.8	17.3	25.7
% WITH CAPABILITY	0.8	24.9	11.0	39.6	39.5	37.6	22.8	9.1

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 8 OF 21

LONG RANGE NAVIGATION EQUIPMENT

STATE	LORAN				APP IFR	OMEGA	OTHER LRNAV
	LORAN C	VFR ONLY	NAV IFR				
KANSAS							
ESTIMATED POPULATION	1,956	1,361	222	32	50	54	
% STANDARD ERROR	14.4	17.9	38.9	124.2	80.2	84.4	
% WITH CAPABILITY	43.2	30.1	4.9	0.7	1.1	1.2	
KENTUCKY							
ESTIMATED POPULATION	891	736	143	14	37	2	
% STANDARD ERROR	22.3	25.5	45.2	132.2	62.2	209.8	
% WITH CAPABILITY	45.7	37.7	7.4	0.7	1.9	0.1	
LOUISIANA							
ESTIMATED POPULATION	2,129	1,685	120	124	31	2	
% STANDARD ERROR	13.5	15.4	56.0	54.7	61.3	181.4	
% WITH CAPABILITY	61.3	48.5	3.5	3.6	0.9	0.1	
MAINE							
ESTIMATED POPULATION	891	749	193	48	0	0	
% STANDARD ERROR	22.5	24.7	50.2	107.1	0.0	0.0	
% WITH CAPABILITY	56.5	47.5	12.3	3.0	0.0	0.0	
MARYLAND							
ESTIMATED POPULATION	1,358	1,255	44	12	12	8	
% STANDARD ERROR	18.2	19.1	83.5	190.1	109.8	184.4	
% WITH CAPABILITY	41.7	38.5	1.4	0.4	0.4	0.3	
MASSACHUSETTS							
ESTIMATED POPULATION	1,954	1,677	121	31	45	38	
% STANDARD ERROR	15.2	16.6	56.3	114.1	85.3	92.5	
% WITH CAPABILITY	56.8	48.7	3.5	0.9	1.3	1.1	
MICHIGAN							
ESTIMATED POPULATION	4,400	3,344	611	206	96	118	
% STANDARD ERROR	9.7	11.4	23.0	41.0	37.1	42.1	
% WITH CAPABILITY	48.3	36.7	6.7	2.3	1.1	1.3	
MINNESOTA							
ESTIMATED POPULATION	2,219	1,656	256	74	47	13	
% STANDARD ERROR	13.6	16.1	40.5	75.3	58.3	100.9	
% WITH CAPABILITY	37.1	27.7	4.3	1.2	0.8	0.2	

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 9 OF 21

STATE	OTHER NAVIGATION EQUIPMENT					NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM	
KANSAS						
ESTIMATED POPULATION	376	468	374	50	61	1,314
% STANDARD ERROR	29.2	26.5	32.3	78.9	79.1	16.6
% WITH CAPABILITY	8.3	10.4	8.3	1.1	1.4	29.0
KENTUCKY						
ESTIMATED POPULATION	220	231	167	3	2	361
% STANDARD ERROR	34.6	30.2	47.3	196.2	209.8	28.4
% WITH CAPABILITY	11.3	11.8	8.6	0.2	0.1	18.5
LOUISIANA						
ESTIMATED POPULATION	313	233	213	21	0	691
% STANDARD ERROR	29.0	32.3	43.4	85.3	0.0	21.1
% WITH CAPABILITY	9.0	6.7	6.1	0.6	0.0	19.9
MAINE						
ESTIMATED POPULATION	17	55	29	3	5	354
% STANDARD ERROR	117.6	74.2	116.8	272.1	208.2	30.2
% WITH CAPABILITY	1.1	3.5	1.8	0.2	0.3	22.5
MARYLAND						
ESTIMATED POPULATION	157	309	321	25	101	438
% STANDARD ERROR	47.3	33.8	37.1	97.8	56.9	29.4
% WITH CAPABILITY	4.8	9.5	9.8	0.8	3.1	13.4
MASSACHUSETTS						
ESTIMATED POPULATION	193	192	322	26	20	528
% STANDARD ERROR	39.6	42.9	34.0	93.1	93.8	24.1
% WITH CAPABILITY	5.6	5.6	9.4	0.8	0.6	15.3
MICHIGAN						
ESTIMATED POPULATION	698	855	704	58	19	2,009
% STANDARD ERROR	18.8	18.2	23.0	55.9	62.7	13.0
% WITH CAPABILITY	7.7	9.4	7.7	0.6	0.2	22.1
MINNESOTA						
ESTIMATED POPULATION	207	244	301	31	68	1,524
% STANDARD ERROR	37.0	31.6	35.8	55.8	67.4	14.9
% WITH CAPABILITY	3.5	4.1	5.0	0.5	1.1	25.5

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 10 OF 21

STATE	BASIC NAVIGATION EQUIPMENT							
	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>MISSISSIPPI</b>								
ESTIMATED POPULATION	31	471	271	899	1,031	1,090	574	294
% STANDARD ERROR	86.1	31.7	41.5	21.8	20.6	20.1	26.7	34.9
% WITH CAPABILITY	1.3	20.4	11.7	38.9	44.6	47.2	24.9	12.8
<b>MISSOURI</b>								
ESTIMATED POPULATION	110	939	480	2,742	2,577	2,281	1,425	670
% STANDARD ERROR	64.4	21.8	32.9	12.8	13.1	13.9	16.6	23.4
% WITH CAPABILITY	2.1	18.1	9.3	52.9	49.7	44.0	27.5	12.9
<b>MONTANA</b>								
ESTIMATED POPULATION	92	855	122	849	1,001	928	511	159
% STANDARD ERROR	70.9	23.7	58.0	22.2	21.4	21.4	28.3	48.7
% WITH CAPABILITY	3.6	33.6	4.8	33.4	39.4	36.5	20.1	6.3
<b>NEBRASKA</b>								
ESTIMATED POPULATION	78	653	93	581	741	822	566	185
% STANDARD ERROR	85.0	25.3	63.3	24.5	22.3	21.6	25.3	41.3
% WITH CAPABILITY	3.5	28.9	4.1	25.7	32.8	36.4	25.1	8.2
<b>NEVADA</b>								
ESTIMATED POPULATION	22	470	205	1,501	1,175	874	795	319
% STANDARD ERROR	118.6	30.0	43.3	16.9	18.6	21.8	22.0	33.8
% WITH CAPABILITY	0.9	18.8	8.2	60.0	47.0	35.0	31.8	12.8
<b>NEW HAMPSHIRE</b>								
ESTIMATED POPULATION	7	638	310	889	920	811	491	109
% STANDARD ERROR	159.4	27.6	38.8	22.1	21.8	23.1	28.9	45.3
% WITH CAPABILITY	0.4	35.1	17.1	49.0	50.6	44.7	27.1	6.0
<b>NEW JERSEY</b>								
ESTIMATED POPULATION	92	874	823	2,701	2,583	2,135	1,315	533
% STANDARD ERROR	63.9	23.0	22.7	12.6	12.6	13.8	16.6	22.9
% WITH CAPABILITY	2.0	18.9	17.8	58.3	55.8	46.1	28.4	11.5
<b>NEW MEXICO</b>								
ESTIMATED POPULATION	6	369	225	1,408	1,244	1,186	900	266
% STANDARD ERROR	137.5	34.0	42.9	17.4	18.1	18.4	20.8	37.1
% WITH CAPABILITY	0.2	14.4	8.8	54.9	48.5	46.3	35.1	10.4

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 11 OF 21

LONG RANGE NAVIGATION EQUIPMENT

STATE	LORAN				OMEGA	OTHER LNAV
	LORAN C	VFR ONLY	NAV IFR	APP IFR		
MISSISSIPPI						
ESTIMATED POPULATION	1,166	788	144	23	13	4
% STANDARD ERROR	18.8	23.1	52.9	101.7	85.2	153.9
% WITH CAPABILITY	50.5	34.2	6.3	1.0	0.6	0.2
MISSOURI						
ESTIMATED POPULATION	2,499	1,783	253	145	88	39
% STANDARD ERROR	13.1	16.1	37.3	55.1	40.4	79.0
% WITH CAPABILITY	48.2	34.4	4.9	2.8	1.7	0.7
MONTANA						
ESTIMATED POPULATION	994	711	63	1	9	3
% STANDARD ERROR	20.5	25.0	61.6	305.9	120.5	288.5
% WITH CAPABILITY	39.1	28.0	2.5	0.1	0.3	0.1
NEBRASKA						
ESTIMATED POPULATION	750	505	62	41	19	11
% STANDARD ERROR	22.3	28.2	65.1	79.7	73.1	83.6
% WITH CAPABILITY	33.2	22.4	2.7	1.8	0.8	0.5
NEVADA						
ESTIMATED POPULATION	837	606	113	52	35	54
% STANDARD ERROR	20.9	25.5	52.6	87.9	82.7	81.4
% WITH CAPABILITY	33.5	24.2	4.5	2.1	1.4	2.1
NEW HAMPSHIRE						
ESTIMATED POPULATION	1,092	892	66	13	16	6
% STANDARD ERROR	19.8	22.3	74.6	186.8	151.5	119.2
% WITH CAPABILITY	60.1	49.1	3.6	0.7	0.9	0.3
NEW JERSEY						
ESTIMATED POPULATION	2,269	1,479	338	68	93	102
% STANDARD ERROR	13.3	16.3	34.2	76.4	45.5	36.1
% WITH CAPABILITY	49.0	31.9	7.3	1.5	2.0	2.2
NEW MEXICO						
ESTIMATED POPULATION	936	631	64	42	29	0
% STANDARD ERROR	19.9	25.5	76.0	103.4	75.1	0.0
% WITH CAPABILITY	36.5	24.6	2.5	1.6	1.1	0.0

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 12 OF 21

STATE	OTHER NAVIGATION EQUIPMENT					NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM	
MISSISSIPPI						
ESTIMATED POPULATION	135	281	212	7	15	645
% STANDARD ERROR	42.0	34.7	46.3	130.8	74.4	23.3
% WITH CAPABILITY	5.9	12.2	9.2	0.3	0.7	28.0
MISSOURI						
ESTIMATED POPULATION	354	437	328	51	106	1,396
% STANDARD ERROR	27.3	25.3	32.6	61.6	64.6	16.3
% WITH CAPABILITY	6.8	8.4	6.3	1.0	2.0	26.9
MONTANA						
ESTIMATED POPULATION	75	93	53	12	4	837
% STANDARD ERROR	55.6	54.8	99.4	120.1	201.5	20.9
% WITH CAPABILITY	3.0	3.6	2.1	0.5	0.2	32.9
NEBRASKA						
ESTIMATED POPULATION	148	193	82	21	58	796
% STANDARD ERROR	46.8	33.2	66.1	138.7	95.2	21.2
% WITH CAPABILITY	6.6	8.6	3.6	0.9	2.6	35.3
NEVADA						
ESTIMATED POPULATION	120	188	39	23	8	494
% STANDARD ERROR	43.3	39.4	81.4	89.8	184.4	25.1
% WITH CAPABILITY	4.8	7.5	1.6	0.9	0.3	19.8
NEW HAMPSHIRE						
ESTIMATED POPULATION	82	51	112	13	37	340
% STANDARD ERROR	62.9	68.7	57.6	95.4	102.2	32.1
% WITH CAPABILITY	4.5	2.8	6.1	0.7	2.0	18.7
NEW JERSEY						
ESTIMATED POPULATION	451	503	777	104	92	987
% STANDARD ERROR	22.3	21.0	22.1	41.7	59.8	19.2
% WITH CAPABILITY	9.7	10.9	16.8	2.2	2.0	21.3
NEW MEXICO						
ESTIMATED POPULATION	119	164	35	24	14	866
% STANDARD ERROR	40.7	37.2	97.2	67.1	74.3	18.5
% WITH CAPABILITY	4.6	6.4	1.4	0.9	0.5	33.8



7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 13 OF 21

BASIC NAVIGATION EQUIPMENT

STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<b>NEW YORK</b>								
ESTIMATED POPULATION	215	1,746	893	4,173	4,324	3,788	2,439	825
% STANDARD ERROR	48.0	16.0	22.4	10.3	10.0	10.6	12.7	19.8
% WITH CAPABILITY	2.9	23.3	11.9	55.6	57.6	50.4	32.5	11.0
<b>NORTH CAROLINA</b>								
ESTIMATED POPULATION	86	1,301	417	3,201	3,327	3,159	2,117	875
% STANDARD ERROR	74.1	18.7	31.5	11.4	11.3	11.3	13.4	20.1
% WITH CAPABILITY	1.5	22.3	7.2	55.0	57.1	54.2	36.4	15.0
<b>NORTH DAKOTA</b>								
ESTIMATED POPULATION	75	377	142	644	735	665	335	231
% STANDARD ERROR	80.2	35.5	59.9	26.8	25.2	26.3	35.9	44.2
% WITH CAPABILITY	4.0	19.9	7.5	34.0	38.8	35.1	17.7	12.2
<b>OHIO</b>								
ESTIMATED POPULATION	105	2,355	741	4,334	5,096	4,419	2,888	1,294
% STANDARD ERROR	61.8	14.3	24.3	9.9	9.1	9.7	11.8	16.7
% WITH CAPABILITY	1.1	25.5	8.0	46.9	55.1	47.8	31.2	14.0
<b>OKLAHOMA</b>								
ESTIMATED POPULATION	84	1,239	263	2,144	2,338	1,954	1,541	650
% STANDARD ERROR	67.8	19.2	38.7	14.0	13.3	14.4	15.9	23.7
% WITH CAPABILITY	1.8	26.4	5.6	45.7	49.8	41.6	32.8	13.8
<b>OREGON</b>								
ESTIMATED POPULATION	162	1,410	521	2,626	3,132	2,907	2,103	637
% STANDARD ERROR	55.7	17.7	28.8	12.4	11.7	11.7	13.8	23.7
% WITH CAPABILITY	2.6	23.0	8.5	42.9	51.1	47.5	34.3	10.4
<b>PENNSYLVANIA</b>								
ESTIMATED POPULATION	282	1,840	495	3,405	4,058	3,524	2,365	749
% STANDARD ERROR	38.8	15.4	28.3	11.0	10.2	11.0	13.0	20.9
% WITH CAPABILITY	3.6	23.7	6.4	43.9	52.3	45.4	30.5	9.6
<b>RHODE ISLAND</b>								
ESTIMATED POPULATION	7	173	79	272	281	224	182	24
% STANDARD ERROR	257.6	52.5	73.5	40.8	39.8	44.3	48.8	126.2
% WITH CAPABILITY	1.3	33.3	15.3	52.4	54.2	43.2	35.0	4.7

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 14 OF 21

LONG RANGE NAVIGATION EQUIPMENT

STATE	LORAN					OMEGA	OTHER LRNAV
	LORAN C	VFR ONLY	NAV IFR	APP IFR			
NEW YORK							
ESTIMATED POPULATION	2,982	2,087	597	48		174	123
% STANDARD ERROR	11.7	14.5	25.0	72.8		32.2	38.7
% WITH CAPABILITY	39.7	27.8	8.0	0.6		2.3	1.6
NORTH CAROLINA							
ESTIMATED POPULATION	3,003	2,383	353	146		129	52
% STANDARD ERROR	11.9	13.6	31.5	47.6		43.4	73.7
% WITH CAPABILITY	51.6	40.9	6.1	2.5		2.2	0.9
NORTH DAKOTA							
ESTIMATED POPULATION	401	177	3	2		6	0
% STANDARD ERROR	30.6	47.8	244.4	505.6		201.3	0.0
% WITH CAPABILITY	21.2	9.3	0.2	0.1		0.3	0.0
OHIO							
ESTIMATED POPULATION	4,071	3,020	619	162		104	40
% STANDARD ERROR	9.9	11.7	24.4	42.1		48.3	49.6
% WITH CAPABILITY	44.1	32.7	6.7	1.8		1.1	0.4
OKLAHOMA							
ESTIMATED POPULATION	1,497	950	208	14		41	22
% STANDARD ERROR	16.1	20.9	40.7	134.5		46.8	66.4
% WITH CAPABILITY	31.9	20.2	4.4	0.3		0.9	0.5
OREGON							
ESTIMATED POPULATION	3,320	2,264	553	159		80	21
% STANDARD ERROR	10.9	13.3	27.4	54.0		49.2	78.4
% WITH CAPABILITY	54.2	37.0	9.0	2.6		1.3	0.3
PENNSYLVANIA							
ESTIMATED POPULATION	3,862	2,757	384	165		89	34
% STANDARD ERROR	10.2	12.6	32.2	44.6		37.8	66.0
% WITH CAPABILITY	49.8	35.5	4.9	2.1		1.1	0.4
RHODE ISLAND							
ESTIMATED POPULATION	199	182	3	3		5	0
% STANDARD ERROR	46.0	48.5	280.0	391.9		236.1	0.0
% WITH CAPABILITY	38.3	35.0	0.5	0.5		0.9	0.0

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 15 OF 21

STATE	OTHER NAVIGATION EQUIPMENT					NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM	
NEW YORK						
ESTIMATED POPULATION	583	884	806	211	185	1,788
% STANDARD ERROR	20.0	17.8	21.7	34.4	37.6	13.4
% WITH CAPABILITY	7.8	11.8	10.7	2.8	2.5	23.8
NORTH CAROLINA						
ESTIMATED POPULATION	481	685	428	56	112	1,089
% STANDARD ERROR	23.4	19.7	28.1	67.4	53.7	18.4
% WITH CAPABILITY	8.3	11.8	7.3	1.0	1.9	18.7
NORTH DAKOTA						
ESTIMATED POPULATION	49	59	59	24	127	723
% STANDARD ERROR	77.5	71.3	78.5	129.4	60.4	23.1
% WITH CAPABILITY	2.6	3.1	3.1	1.2	6.7	38.2
OHIO						
ESTIMATED POPULATION	717	887	864	119	58	2,224
% STANDARD ERROR	20.8	17.6	21.1	40.3	46.1	12.1
% WITH CAPABILITY	7.8	9.6	9.3	1.3	0.6	24.1
OKLAHOMA						
ESTIMATED POPULATION	276	339	208	26	22	1,124
% STANDARD ERROR	28.0	25.9	39.5	62.0	61.7	17.0
% WITH CAPABILITY	5.9	7.2	4.4	0.5	0.5	23.9
OREGON						
ESTIMATED POPULATION	431	378	78	105	82	1,426
% STANDARD ERROR	24.8	24.7	51.3	55.2	42.3	15.3
% WITH CAPABILITY	7.0	6.2	1.3	1.7	1.3	23.3
PENNSYLVANIA						
ESTIMATED POPULATION	547	510	770	157	46	2,247
% STANDARD ERROR	21.9	22.4	22.5	45.3	47.6	11.8
% WITH CAPABILITY	7.1	6.6	9.9	2.0	0.6	29.0
RHODE ISLAND						
ESTIMATED POPULATION	18	10	36	1	0	66
% STANDARD ERROR	128.7	141.3	109.3	305.3	0.0	73.5
% WITH CAPABILITY	3.4	2.0	6.9	0.3	0.0	12.7

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 16 OF 21

STATE	BASIC NAVIGATION EQUIPMENT							
	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
SOUTH CAROLINA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	87	474	234	1,391	1,492	1,369	910	258
	72.1	30.6	46.4	18.0	17.4	18.1	21.8	37.3
	3.7	20.3	10.0	59.5	63.8	58.6	38.9	11.0
SOUTH DAKOTA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	118	340	65	464	488	372	184	72
	65.3	35.2	81.3	30.6	30.2	34.3	45.7	66.6
	7.6	21.8	4.1	29.8	31.3	23.9	11.8	4.6
TENNESSEE ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	119	793	403	1,812	1,944	1,910	1,211	483
	58.6	24.5	35.0	15.3	14.9	14.9	17.8	26.0
	3.6	24.3	12.4	55.5	59.5	58.5	37.1	14.8
TEXAS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	505	4,676	2,474	10,703	11,576	10,229	7,839	3,386
	28.8	9.8	13.7	6.1	5.9	6.2	6.9	10.5
	2.4	22.0	11.6	50.3	54.4	48.1	36.9	15.9
UTAH ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	50	367	141	585	660	581	520	142
	91.9	34.5	55.3	26.7	24.7	26.4	28.1	49.1
	3.7	26.9	10.4	42.8	48.3	42.6	38.1	10.4
VERMONT ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	18	140	108	340	332	276	238	66
	159.0	57.3	66.9	35.6	36.7	40.2	42.4	80.3
	2.6	20.1	15.5	48.9	47.7	39.6	34.2	9.5
VIRGINIA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	59	894	631	2,347	2,353	2,061	1,514	570
	46.7	23.1	27.5	13.2	13.2	14.2	16.0	25.2
	1.4	21.2	15.0	55.7	55.9	49.0	35.9	13.5
WASHINGTON ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	236	2,007	743	3,272	3,326	3,280	1,542	376
	42.9	14.3	23.7	11.3	11.4	11.4	16.3	32.1
	2.9	25.0	9.3	40.8	41.4	40.9	19.2	4.7

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 17 OF 21

LONG RANGE NAVIGATION EQUIPMENT

STATE	-----LORAN-----				OMEGA	OTHER LRNAV
	LORAN C	VFR ONLY	NAV IFR	APP IFR		
SOUTH CAROLINA						
ESTIMATED POPULATION	1,498	1,185	162	40	25	4
% STANDARD ERROR	16.9	19.6	48.8	110.6	134.1	136.3
% WITH CAPABILITY	64.0	50.7	6.9	1.7	1.1	0.2
SOUTH DAKOTA						
ESTIMATED POPULATION	382	240	19	0	5	0
% STANDARD ERROR	34.1	42.7	129.9	0.0	189.4	0.0
% WITH CAPABILITY	24.5	15.4	1.2	0.0	0.3	0.0
TENNESSEE						
ESTIMATED POPULATION	1,608	1,372	184	36	51	13
% STANDARD ERROR	16.4	18.3	35.4	90.8	50.4	130.8
% WITH CAPABILITY	49.3	42.0	5.6	1.1	1.6	0.4
TEXAS						
ESTIMATED POPULATION	8,740	6,263	999	400	355	139
% STANDARD ERROR	6.7	8.1	18.1	33.4	18.4	31.9
% WITH CAPABILITY	41.1	29.4	4.7	1.9	1.7	0.7
UTAH						
ESTIMATED POPULATION	573	390	83	9	17	5
% STANDARD ERROR	26.5	32.5	67.3	180.6	96.5	253.8
% WITH CAPABILITY	42.0	28.5	6.1	0.6	1.3	0.4
VERMONT						
ESTIMATED POPULATION	367	259	67	34	7	38
% STANDARD ERROR	33.8	41.7	78.6	119.8	92.9	104.5
% WITH CAPABILITY	52.7	37.2	9.7	4.8	1.0	5.5
VIRGINIA						
ESTIMATED POPULATION	2,105	1,435	311	89	186	85
% STANDARD ERROR	13.8	17.6	28.7	57.9	35.0	54.2
% WITH CAPABILITY	50.0	34.1	7.4	2.1	4.4	2.0
WASHINGTON						
ESTIMATED POPULATION	2,899	2,060	158	18	29	19
% STANDARD ERROR	11.6	13.9	46.4	135.2	72.2	60.6
% WITH CAPABILITY	36.1	25.7	2.0	0.2	0.4	0.2

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 18 OF 21

STATE	OTHER NAVIGATION EQUIPMENT					GPS SYSTEM	GPS SYSTEM	NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPWS SYSTEM			
SOUTH CAROLINA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	100	166	245	17	3	440		
	48.0	43.9	41.8	111.5	137.0	25.8		
	4.3	7.1	10.5	0.7	0.1	18.8		
SOUTH DAKOTA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	37	61	74	16	1	644		
	82.7	64.5	80.2	137.0	236.7	24.4		
	2.4	3.9	4.7	1.0	0.1	41.4		
TENNESSEE ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	484	386	258	82	43	483		
	22.2	22.1	37.9	38.8	73.2	25.7		
	14.8	11.8	7.9	2.5	1.3	14.8		
TEXAS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	2,128	2,265	2,256	387	64	4,864		
	11.5	11.6	12.6	27.4	76.7	8.2		
	10.0	10.6	10.6	1.8	0.3	22.9		
UTAH ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	119	132	76	39	13	361		
	53.9	49.5	72.7	106.2	163.7	33.4		
	8.7	9.7	5.6	2.8	0.9	26.4		
VERMONT ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	41	28	88	0	8	132		
	91.6	100.8	68.5	0.0	82.4	46.5		
	5.8	4.0	12.7	0.0	1.2	18.9		
VIRGINIA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	652	662	367	189	87	878		
	20.4	21.3	31.2	41.3	52.0	19.9		
	15.5	15.7	8.7	4.5	2.1	20.9		
WASHINGTON ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	292	173	47	44	43	2,177		
	29.9	36.7	42.9	78.3	97.0	12.8		
	3.6	2.2	0.6	0.6	0.5	27.1		

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 19 OF 21

BASIC NAVIGATION EQUIPMENT								
STATE	VOR 100CH PORT	VOR 100CH FXD	VOR 200CH PORT	VOR 200CH FXD	1+ VOR	ADF	DME	RNAV
<hr/>								
WEST VIRGINIA								
ESTIMATED POPULATION	30	362	75	665	863	724	525	182
% STANDARD ERROR	114.0	37.3	75.4	26.4	23.3	25.0	29.7	46.2
% WITH CAPABILITY	2.3	27.3	5.6	50.2	65.1	54.6	39.6	13.7
<hr/>								
WISCONSIN								
ESTIMATED POPULATION	252	1,234	404	3,063	2,609	2,559	1,700	757
% STANDARD ERROR	40.2	19.0	32.2	12.0	12.9	13.0	15.6	21.7
% WITH CAPABILITY	4.2	20.4	6.7	50.6	43.1	42.2	28.1	12.5
<hr/>								
WYOMING								
ESTIMATED POPULATION	10	147	65	689	532	546	390	87
% STANDARD ERROR	187.0	50.8	83.9	25.2	28.4	27.8	32.9	54.3
% WITH CAPABILITY	1.0	15.3	6.8	71.9	55.5	57.0	40.8	9.1
<hr/>								
PUERTO RICO								
ESTIMATED POPULATION	0	145	35	289	420	380	165	62
% STANDARD ERROR	0.0	44.6	114.8	39.9	31.1	31.8	45.5	64.0
% WITH CAPABILITY	0.0	25.1	6.0	50.0	72.6	65.7	28.5	10.7
<hr/>								
OTHER U. S. TERRITORIES								
ESTIMATED POPULATION	7	8	12	66	73	85	75	17
% STANDARD ERROR	239.7	244.8	158.5	63.3	62.1	57.9	61.3	133.2
% WITH CAPABILITY	6.9	7.5	11.6	62.6	69.0	80.0	70.5	16.3

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 20 OF 21

LONG RANGE NAVIGATION EQUIPMENT

STATE	LONG RANGE NAVIGATION EQUIPMENT						OTHER LRNAV
	LORAN C	VFR ONLY	LORAN	NAV IFR	APP IFR	OMEGA	
WEST VIRGINIA							
ESTIMATED POPULATION	693	548		164	38	5	0
% STANDARD ERROR	25.2	29.1		54.0	99.0	118.9	0.0
% WITH CAPABILITY	52.2	41.4		12.3	2.9	0.4	0.0
WISCONSIN							
ESTIMATED POPULATION	2,929	2,194		234	73	90	20
% STANDARD ERROR	12.1	14.3		39.0	78.7	51.6	73.9
% WITH CAPABILITY	48.4	36.2		3.9	1.2	1.5	0.3
WYOMING							
ESTIMATED POPULATION	278	222		32	0	4	7
% STANDARD ERROR	34.4	38.5		101.9	0.0	179.1	165.8
% WITH CAPABILITY	29.0	23.2		3.4	0.0	0.4	0.7
PUERTO RICO							
ESTIMATED POPULATION	93	25		36	32	2	6
% STANDARD ERROR	63.2	141.8		91.9	99.1	505.6	120.6
% WITH CAPABILITY	16.1	4.4		6.2	5.5	0.3	1.1
OTHER U.S. TERRITORIES							
ESTIMATED POPULATION	46	28		0	0	3	4
% STANDARD ERROR	93.5	110.6		0.0	0.0	200.7	221.4
% WITH CAPABILITY	43.9	26.0		0.0	0.0	2.5	4.1
TOTAL	120,138	89,542		14,419	5,720	3,418	1,901
ESTIMATED POPULATION							
% STANDARD ERROR	1.3	1.7		4.7	8.2	5.0	9.3
% WITH CAPABILITY	45.3	33.8		5.4	2.2	1.3	0.7

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.12 1991 GENERAL AVIATION AIRCRAFT WITH BASIC, LONG RANGE, AND OTHER NAVIGATION EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 21 OF 21

STATE	OTHER NAVIGATION EQUIPMENT					NO NAV EQ
	RADAR ALTIM	WEATHER RADAR	THUNDER STM DET	GPWS SYSTEM	GPS SYSTEM	
<hr/>						
WEST VIRGINIA						
ESTIMATED POPULATION	99	146	66	19	3	216
% STANDARD ERROR	59.9	51.3	73.4	139.6	320.1	40.8
% WITH CAPABILITY	7.4	11.0	5.0	1.5	0.3	16.3
<hr/>						
WISCONSIN						
ESTIMATED POPULATION	440	568	358	39	38	1,433
% STANDARD ERROR	27.0	24.0	33.1	90.9	74.0	15.7
% WITH CAPABILITY	7.3	9.4	5.9	0.6	0.6	23.7
<hr/>						
WYOMING						
ESTIMATED POPULATION	63	123	7	3	4	108
% STANDARD ERROR	48.1	50.7	235.3	160.7	237.8	55.3
% WITH CAPABILITY	6.6	12.8	0.8	0.3	0.4	11.3
<hr/>						
PUERTO RICO						
ESTIMATED POPULATION	46	64	26	15	8	131
% STANDARD ERROR	77.8	67.0	123.5	166.6	127.1	60.4
% WITH CAPABILITY	7.9	11.1	4.4	2.5	1.3	22.6
<hr/>						
OTHER U.S. TERRITORIES						
ESTIMATED POPULATION	16	32	11	1	12	20
% STANDARD ERROR	124.6	66.8	179.2	313.2	174.4	158.4
% WITH CAPABILITY	15.0	30.6	10.1	1.1	11.4	19.0
<hr/>						
TOTAL						
ESTIMATED POPULATION	19,289	22,685	18,655	3,850	3,178	59,617
% STANDARD ERROR	3.0	2.3	4.1	7.7	9.8	1.5
% WITH CAPABILITY	7.3	8.6	7.0	1.5	1.2	22.5

NOTE: COLUMN SUBTOTALS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.13 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	GUIDANCE AND CONTROL EQUIPMENT			AUTO LAND	FL DATA REC'D	NO GCE
				-----AUTOPILOT-AXIS CONTROLS----- LONGITUDE	VERTICAL	LATERAL			
FIXED WING									
FIXED WING - PISTON									
1 ENG: 1-3 SEATS									
ESTIMATED POPULATION	179	118	37	1,003	571	779	358	15	86,864
% STANDARD ERROR	49.2	59.6	84.4	22.2	29.1	24.5	35.8	102.8	0.3
% WITH CAPABILITY	0.2	0.1	0.0	1.1	0.6	0.9	0.4	0.0	98.3
1 ENG: 4+ SEATS									
ESTIMATED POPULATION	5,237	588	860	41,987	19,635	32,183	19,739	441	68,261
% STANDARD ERROR	7.9	27.3	21.9	2.2	3.7	2.8	3.9	32.1	1.4
% WITH CAPABILITY	4.4	0.5	0.7	35.6	16.6	27.3	16.7	0.4	57.8
1 ENGINE: TOTAL									
ESTIMATED POPULATION	5,417	706	897	42,991	20,206	32,962	20,097	456	155,126
% STANDARD ERROR	7.8	24.8	21.3	2.3	3.7	2.8	3.9	31.2	0.6
% WITH CAPABILITY	2.6	0.3	0.4	20.8	9.8	16.0	9.7	0.2	75.2
2 ENG: 1-6 SEATS									
ESTIMATED POPULATION	4,401	387	221	13,121	11,905	11,693	8,857	150	3,699
% STANDARD ERROR	6.8	29.0	40.5	2.6	3.2	3.3	4.6	45.3	8.9
% WITH CAPABILITY	25.4	2.2	1.3	75.6	68.6	67.4	51.0	0.9	21.3
2 ENG: 7+ SEATS									
ESTIMATED POPULATION	3,171	152	322	6,176	6,073	5,671	4,965	10	2,206
% STANDARD ERROR	6.7	40.6	31.6	2.2	2.4	3.1	4.2	156.4	5.9
% WITH CAPABILITY	37.5	1.8	3.8	73.0	71.8	67.0	58.7	0.1	26.1
2 ENGINE: TOTAL									
ESTIMATED POPULATION	7,572	539	542	19,296	17,978	17,363	13,822	160	5,906
% STANDARD ERROR	4.8	23.8	25.0	1.9	2.2	2.4	3.3	43.6	6.0
% WITH CAPABILITY	29.3	2.1	2.1	74.7	69.6	67.2	53.5	0.6	22.9
PISTON: OTHER									
ESTIMATED POPULATION	0	0	0	0	0	0	0	0	272
% STANDARD ERROR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% WITH CAPABILITY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
PISTON: TOTAL									
ESTIMATED POPULATION	12,989	1,245	1,439	62,287	38,184	50,325	33,920	616	161,303
% STANDARD ERROR	4.3	17.4	16.3	1.7	2.2	2.0	2.7	25.7	0.6
% WITH CAPABILITY	5.6	0.5	0.6	26.8	16.4	21.6	14.6	0.3	69.4

7.13 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'DER	NO GCE
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS-----			LONGITUDE VERTICAL LATERAL APP MODE			AUTO LAND		
FIXED WING - TURBOPROP												
2 ENG: 1-12 SEATS												
ESTIMATED POPULATION	3,848	314	347	3,990	3,933	3,943	3,778			30	26	405
% STANDARD ERROR	2.6	20.9	22.5	2.2	2.3	2.3	2.7			104.2	85.5	20.5
% WITH CAPABILITY	85.9	7.0	7.7	89.0	87.8	88.0	84.3			0.7	0.6	9.0
2 ENG: 13+ SEATS												
ESTIMATED POPULATION	632	361	147	529	541	538	507			23	185	512
% STANDARD ERROR	9.6	17.7	34.1	11.9	11.4	11.4	11.6			44.1	24.7	12.9
% WITH CAPABILITY	50.5	28.8	11.7	42.2	43.2	43.0	40.5			1.9	14.8	40.9
2 ENGINE: TOTAL												
ESTIMATED POPULATION	4,480	675	493	4,519	4,474	4,482	4,285			53	211	917
% STANDARD ERROR	2.6	13.6	18.8	2.4	2.5	2.4	2.7			61.9	24.0	11.6
% WITH CAPABILITY	78.1	11.8	8.6	78.8	78.0	78.1	74.7			0.9	3.7	16.0
TURBOPROP: OTHER												
ESTIMATED POPULATION	160	48	29	190	190	176	175			0	2	346
% STANDARD ERROR	25.3	78.3	105.4	20.3	20.3	22.8	23.1			0.0	433.8	11.7
% WITH CAPABILITY	29.4	8.7	5.4	35.0	35.0	32.3	32.1			0.0	0.4	63.5
TURBOPROP: TOTAL												
ESTIMATED POPULATION	4,640	722	523	4,709	4,664	4,657	4,460			53	213	1,263
% STANDARD ERROR	2.6	13.7	18.7	2.4	2.5	2.5	2.8			61.9	24.2	9.0
% WITH CAPABILITY	73.9	11.5	8.3	75.0	74.3	74.2	71.0			0.9	3.4	20.1
FIXED WING - TURBOJET												
2 ENGINE TURBOJET												
ESTIMATED POPULATION	4,100	1,076	1,425	4,137	4,126	4,094	3,961			47	473	157
% STANDARD ERROR	1.6	10.7	8.5	1.7	1.7	1.7	2.1			57.6	17.9	33.5
% WITH CAPABILITY	93.5	24.6	32.5	94.4	94.1	93.4	90.4			1.1	10.8	3.6
TURBOJET: OTHER												
ESTIMATED POPULATION	425	193	197	421	420	416	406			2	98	201
% STANDARD ERROR	6.2	14.4	14.5	6.3	6.4	6.6	6.7			181.4	22.7	13.1
% WITH CAPABILITY	66.6	30.2	30.9	66.0	65.8	65.2	63.6			0.3	15.4	31.5
TURBOJET: TOTAL												
ESTIMATED POPULATION	4,525	1,269	1,622	4,558	4,546	4,510	4,367			49	572	358
% STANDARD ERROR	1.6	9.3	7.7	1.6	1.6	1.7	2.0			55.8	15.3	16.4
% WITH CAPABILITY	90.1	25.3	32.3	90.8	90.5	89.8	87.0			1.0	11.4	7.1

7.13 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	GUIDANCE AND CONTROL EQUIPMENT										
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	LONGITUDE	VERTICAL	LATERAL	APP MODE	AUTO LAND	FL DATA RECORDER	NO GCE	
-----AUTOPILOT-AXIS CONTROLS-----											
FIXED WING: TOTAL											
ESTIMATED POPULATION	22,153	3,236	3,584	71,554	47,394	59,493	42,747	719	859	162,924	
% STANDARD ERROR	2.6	8.2	7.9	1.5	1.8	1.7	2.1	22.8	13.3	0.6	
% WITH CAPABILITY	9.1	1.3	1.5	29.4	19.4	24.4	17.5	0.3	0.4	66.8	
ROTORCRAFT											
PISTON											
ESTIMATED POPULATION	3	2	0	5	5	5	0	0	0	5,838	
% STANDARD ERROR	253.1	306.1	0.0	193.4	193.4	193.4	0.0	0.0	0.0	0.2	
% WITH CAPABILITY	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	99.8	
TURBINE											
ESTIMATED POPULATION	439	80	64	491	535	546	403	1	2	3,954	
% STANDARD ERROR	16.4	50.6	46.1	19.8	20.2	19.4	22.1	253.3	406.3	2.8	
% WITH CAPABILITY	9.5	1.7	1.4	10.6	11.6	11.8	8.7	0.0	0.0	85.5	
ROTORCRAFT: TOTAL											
ESTIMATED POPULATION	442	82	64	496	540	551	403	1	2	9,792	
% STANDARD ERROR	16.3	49.9	46.1	19.7	20.1	19.3	22.1	253.3	406.3	1.2	
% WITH CAPABILITY	4.2	0.8	0.6	4.7	5.2	5.3	3.8	0.0	0.0	93.5	
OTHER AIRCRAFT											
ESTIMATED POPULATION	13	3	5	1	2	3	2	0	0	10,756	
% STANDARD ERROR	61.8	123.4	85.2	162.3	153.4	111.6	153.4	0.0	0.0	0.1	
% WITH CAPABILITY	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	99.8	
TOTAL											
ESTIMATED POPULATION	22,609	3,321	3,654	72,052	47,936	60,047	43,152	720	861	183,472	
% STANDARD ERROR	2.6	8.1	7.8	1.5	1.8	1.7	2.1	22.8	13.3	0.6	
% WITH CAPABILITY	8.5	1.3	1.4	27.2	18.1	22.7	16.3	0.3	0.3	69.2	

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.14 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS----- LONGITUDE	VERTICAL	LATERAL	APP MODE	AUTO LAND	FL DATA REC'D	NO GCE
EXECUTIVE										
ESTIMATED POPULATION	8,002	1,556	1,777	9,641	9,198	9,450	8,685	66	381	975
% STANDARD ERROR	4.0	8.9	8.4	4.1	4.1	4.2	4.2	57.7	16.9	18.6
% WITH CAPABILITY	74.1	14.4	16.5	89.3	85.2	87.5	80.4	0.6	3.5	9.0
BUSINESS										
ESTIMATED POPULATION	6,674	785	993	20,750	15,466	17,217	13,561	215	104	10,903
% STANDARD ERROR	6.4	20.8	18.6	3.8	4.4	4.2	4.8	43.6	51.2	6.1
% WITH CAPABILITY	19.7	2.3	2.9	61.3	45.7	50.9	40.1	0.6	0.3	32.2
PERSONAL										
ESTIMATED POPULATION	3,947	387	413	30,006	14,901	23,659	14,513	377	110	87,608
% STANDARD ERROR	9.8	33.1	31.6	3.2	4.9	3.8	5.0	33.4	54.2	1.4
% WITH CAPABILITY	3.2	0.3	0.3	24.4	12.1	19.2	11.8	0.3	0.1	71.2
INSTRUCTIONAL										
ESTIMATED POPULATION	275	103	3	2,607	1,199	2,172	1,032	23	51	16,228
% STANDARD ERROR	28.8	44.5	214.9	12.8	18.1	14.0	19.2	0.0	34.8	4.8
% WITH CAPABILITY	1.4	0.5	0.0	13.5	6.2	11.2	5.3	0.1	0.3	83.7
AERIAL APPLICATION										
ESTIMATED POPULATION	27	0	2	219	208	182	193	0	2	7,393
% STANDARD ERROR	92.2	0.0	458.0	41.3	43.6	46.5	45.8	0.0	175.0	3.6
% WITH CAPABILITY	0.4	0.0	0.0	2.9	2.7	2.4	2.5	0.0	0.0	97.1
AERIAL OBSERVATION										
ESTIMATED POPULATION	230	43	94	1,314	827	892	604	0	11	3,909
% STANDARD ERROR	43.3	82.2	67.7	17.8	22.3	21.8	25.7	0.0	99.5	9.8
% WITH CAPABILITY	4.3	0.8	1.7	24.4	15.3	16.5	11.2	0.0	0.2	72.5
OTHER WORK USE										
ESTIMATED POPULATION	26	0	3	153	86	106	50	0	0	1,601
% STANDARD ERROR	60.2	0.0	268.8	40.2	33.1	32.0	44.6	0.0	0.0	13.9
% WITH CAPABILITY	1.5	0.0	0.2	8.7	4.9	6.0	2.8	0.0	0.0	90.8
COMMUTER AIR CARRIER										
ESTIMATED POPULATION	214	119	20	289	289	289	267	0	109	498
% STANDARD ERROR	32.5	22.7	59.4	31.5	31.5	31.5	33.1	0.0	21.2	17.8
% WITH CAPABILITY	23.1	12.9	2.2	31.3	31.3	31.3	28.9	0.0	11.8	53.9

7.14 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'D	NO GCE
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS-----			LONGITUDE	VERTICAL	LATERAL	APP MODE	AUTO LAND	
AIR TAXI ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	2,033	52	66	3,300	2,973	2,842	2,458				21	2,345
	11.2	58.5	53.8	9.6	9.9	10.3	11.1				100.2	10.9
	35.4	0.9	1.1	57.5	51.8	49.5	42.8				0.4	40.8
OTHER ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	596	115	131	998	891	951	755				0	3,037
	17.9	38.8	35.1	17.3	18.3	17.4	19.7				0.0	10.0
	14.2	2.8	3.1	23.8	21.3	22.7	18.0				0.0	72.6
INACTIVE ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	504	126	118	2,603	1,806	2,138	967				15	49,137
	18.5	40.3	30.0	9.2	10.7	10.1	14.6				106.0	0.5
	1.0	0.2	0.2	5.0	3.5	4.1	1.8				0.0	94.0
TOTAL ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	22,609	3,321	3,654	72,052	47,936	60,047	43,152				720	183,472
	2.6	8.1	7.8	1.5	1.8	1.7	2.1				22.8	0.6
	8.5	1.3	1.4	27.2	18.1	22.7	16.3				0.3	69.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.15 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS-----			AUTO LAND	FL DATA REC'D	NO GCE	
				LONGITUDE	VERTICAL	LATERAL	APP MODE			
ALASKAN										
ESTIMATED POPULATION	100	34	7	573	368	505	360	2	15	
% STANDARD ERROR	53.9	62.4	140.7	24.1	30.6	26.3	31.8	106.1	114.6	
% WITH CAPABILITY	1.1	0.4	0.1	6.1	3.9	5.4	3.9	0.0	0.2	
CENTRAL										
ESTIMATED POPULATION	1,510	169	159	4,124	2,636	3,563	2,473	58	9	
% STANDARD ERROR	14.1	39.8	38.0	9.6	11.5	10.3	11.9	78.2	112.4	
% WITH CAPABILITY	9.8	1.1	1.0	26.8	17.1	23.2	16.1	0.4	0.1	
EASTERN										
ESTIMATED POPULATION	3,006	507	612	8,932	5,691	7,539	5,387	117	171	
% STANDARD ERROR	9.4	18.7	17.4	6.5	7.7	7.0	8.0	50.9	27.0	
% WITH CAPABILITY	10.0	2.0	2.0	29.8	19.0	25.2	18.0	0.4	0.6	
GREAT LAKES										
ESTIMATED POPULATION	3,922	389	591	12,303	8,405	10,244	7,726	68	120	
% STANDARD ERROR	8.2	21.5	20.9	5.4	6.4	5.9	6.7	73.2	36.1	
% WITH CAPABILITY	8.3	0.8	1.3	26.1	17.8	21.7	16.4	0.1	0.3	
NEW ENGLAND										
ESTIMATED POPULATION	616	88	151	2,938	1,672	2,358	1,700	60	0	
% STANDARD ERROR	22.8	53.3	44.0	12.0	15.5	13.5	15.5	90.2	0.0	
% WITH CAPABILITY	5.9	0.9	1.5	28.3	16.1	22.7	16.4	0.6	0.0	
NORTHWEST MOUNTAIN										
ESTIMATED POPULATION	1,920	387	350	5,718	3,995	4,536	3,239	105	209	
% STANDARD ERROR	13.0	27.1	29.1	8.2	9.5	9.1	10.6	61.0	37.7	
% WITH CAPABILITY	7.1	1.4	1.3	21.2	14.8	16.8	12.0	0.4	0.8	
SOUTHERN										
ESTIMATED POPULATION	3,973	660	617	13,584	9,516	11,482	8,437	152	115	
% STANDARD ERROR	8.1	20.5	21.8	5.1	5.9	5.6	6.4	54.1	27.0	
% WITH CAPABILITY	9.3	1.5	1.4	31.7	22.2	26.8	19.7	0.4	0.3	
SOUTHWESTERN										
ESTIMATED POPULATION	3,414	434	683	10,240	6,929	8,833	6,402	24	79	
% STANDARD ERROR	9.1	21.1	20.7	5.9	6.9	6.3	7.2	61.2	35.7	
% WITH CAPABILITY	9.8	1.2	2.0	29.4	19.9	25.4	18.4	0.1	0.2	

7.15 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	LONGITUDE	VERTICAL	AUTOPILOT-AXIS CONTROLS----- LATERAL	APP MODE	AUTO LAND	FL DATA REC'D	NO GCE
WESTERN-PACIFIC										
ESTIMATED POPULATION	4,148	573	482	13,640	8,733	10,989	7,428	135	143	32,436
% STANDARD ERROR	8.5	23.4	19.7	5.1	6.2	5.7	6.8	53.5	32.1	3.2
% WITH CAPABILITY	8.6	1.2	1.0	28.3	18.1	22.8	15.4	0.3	0.3	67.2
TOTAL										
ESTIMATED POPULATION	22,609	3,321	3,654	72,052	47,936	60,047	43,152	720	861	183,472
% STANDARD ERROR	2.6	8.1	7.8	1.5	1.8	1.7	2.1	22.8	13.3	0.6
% WITH CAPABILITY	8.5	1.3	1.4	27.2	18.1	22.7	16.3	0.3	0.3	69.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



7.16 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	GUIDANCE AND CONTROL EQUIPMENT											FL DATA REC'D	NO GCE
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS-----			APP MODE	AUTO LAND					
				LONGITUDE	VERTICAL	LATERAL							
ALABAMA													
ESTIMATED POPULATION	339	11	31	1,188	824	856	799		0	6	2,749		
% STANDARD ERROR	27.1	97.2	62.0	18.5	21.8	21.1	22.1		0.0	175.9	12.5		
% WITH CAPABILITY	8.4	0.3	0.8	29.5	20.5	21.3	19.8		0.0	0.1	68.2		
ALASKA													
ESTIMATED POPULATION	100	34	7	573	368	505	360		2	15	8,646		
% STANDARD ERROR	53.9	62.4	140.7	24.1	30.6	26.3	31.8		106.1	114.6	6.0		
% WITH CAPABILITY	1.1	0.4	0.1	6.1	3.9	5.4	3.9		0.0	0.2	92.8		
ARIZONA													
ESTIMATED POPULATION	432	24	43	1,728	1,059	1,364	846		17	24	4,488		
% STANDARD ERROR	28.6	70.0	60.0	15.4	19.3	17.2	21.3		121.5	94.2	9.3		
% WITH CAPABILITY	6.6	0.4	0.7	26.2	16.1	20.7	12.9		0.3	0.4	68.2		
ARKANSAS													
ESTIMATED POPULATION	275	10	14	674	554	477	401		0	0	2,092		
% STANDARD ERROR	33.7	93.6	82.2	24.0	26.1	27.4	28.9		0.0	0.0	14.1		
% WITH CAPABILITY	9.8	0.4	0.5	24.0	19.7	17.0	14.3		0.0	0.0	74.4		
CALIFORNIA													
ESTIMATED POPULATION	3,470	500	404	11,017	7,199	8,993	6,174		117	94	25,708		
% STANDARD ERROR	9.4	25.8	21.6	5.7	6.9	6.3	7.5		58.7	33.8	3.7		
% WITH CAPABILITY	9.0	1.3	1.0	28.6	18.7	23.4	16.0		0.3	0.2	66.8		
COLORADO													
ESTIMATED POPULATION	556	84	93	1,520	1,238	1,180	818		0	97	3,840		
% STANDARD ERROR	25.0	53.0	51.0	16.5	18.2	18.5	22.1		0.0	53.2	10.3		
% WITH CAPABILITY	10.0	1.5	1.7	27.4	22.3	21.3	14.8		0.0	1.7	69.2		
CONNECTICUT													
ESTIMATED POPULATION	169	25	35	783	513	796	704		47	0	1,462		
% STANDARD ERROR	44.6	97.4	110.1	24.0	29.3	24.2	25.4		102.9	0.0	16.5		
% WITH CAPABILITY	7.2	1.1	1.5	33.5	21.9	34.0	30.1		2.0	0.0	62.5		
DELAWARE													
ESTIMATED POPULATION	182	9	13	431	363	447	233		0	0	594		
% STANDARD ERROR	35.9	82.1	95.4	27.2	28.9	28.0	35.0		0.0	0.0	26.0		
% WITH CAPABILITY	16.1	0.8	1.1	38.0	32.0	39.4	20.5		0.0	0.0	52.4		

7.16 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

STATE	GUIDANCE AND CONTROL EQUIPMENT										FL DATA REC'D	NO GCE
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS-----						AUTO LAND		
				LONGITUDE	VERTICAL	LATERAL	APP	MODE				
DISTRICT OF COLUMBIA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	12 130.6 11.4	10 135.5 10.0	9 142.7 8.3	12 124.9 11.3	12 124.9 11.3	10 130.1 9.6	10 135.5 10.0	10 135.5 10.0	0 0.0 0.0	0 208.7 4.8	5 63.8 87.3	92 63.8 87.3
FLORIDA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	1,385 14.7 8.4	317 32.2 1.9	321 31.1 1.9	5,692 8.3 34.5	3,722 10.0 22.5	5,024 8.9 30.4	3,152 11.0 19.1	32 124.7 0.2	38 66.6 0.2	10,229 6.2 61.9	10,229 6.2 61.9	10,229 6.2 61.9
GEORGIA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	555 23.0 9.3	143 39.9 2.4	78 56.2 1.3	1,863 14.6 31.3	1,393 16.4 23.4	1,358 16.4 22.8	1,139 17.8 19.1	27 113.3 0.5	30 29.8 0.5	3,815 10.4 64.1	3,815 10.4 64.1	3,815 10.4 64.1
HAWAII ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	36 101.2 5.5	5 217.8 0.7	2 295.4 0.4	97 69.9 15.0	65 84.0 10.1	71 79.0 11.0	49 87.4 7.5	0 0.0 0.0	0 0.0 0.0	516 26.5 79.8	516 26.5 79.8	516 26.5 79.8
IDAHO ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	194 34.7 8.1	126 48.8 5.3	80 66.9 3.3	513 26.5 21.4	457 28.0 19.1	433 28.6 18.1	334 31.0 13.9	62 75.6 2.6	48 63.9 2.0	1,860 14.8 77.7	1,860 14.8 77.7	1,860 14.8 77.7
ILLINOIS ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	842 18.6 9.7	67 36.5 0.8	164 39.7 1.9	2,915 11.8 33.7	2,299 13.0 26.5	2,629 12.3 30.4	1,971 14.1 22.8	54 86.3 0.6	23 54.8 0.3	5,376 8.8 62.1	5,376 8.8 62.1	5,376 8.8 62.1
INDIANA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	456 24.7 9.8	44 64.5 1.0	69 56.4 1.5	1,490 16.2 32.1	1,018 18.8 21.9	1,097 18.2 23.6	859 20.1 18.5	0 0.0 0.0	7 159.2 0.1	3,039 11.7 65.4	3,039 11.7 65.4	3,039 11.7 65.4
IOWA ESTIMATED POPULATION & STANDARD ERROR & WITH CAPABILITY	371 31.5 10.9	15 81.4 0.4	6 121.5 0.2	854 21.6 25.0	667 24.1 19.5	861 21.9 25.2	464 27.8 13.6	20 137.5 0.6	1 255.9 0.0	2,259 13.4 66.1	2,259 13.4 66.1	2,259 13.4 66.1

7.16 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 7

STATE	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	GUIDANCE AND CONTROL EQUIPMENT				AUTO LAND	FL DATA RECORDER	NO GCE
				-----AUTOPILOT-AXIS CONTROLS-----	LONGITUDE	VERTICAL	LATERAL			
KANSAS	433	68	87	1,297	927	968	867	0	2	3,068
	26.3	76.5	56.3	17.5	20.3	19.7	20.9	0.0	284.2	11.7
	9.6	1.5	1.9	28.7	20.5	21.4	19.2	0.0	0.0	67.8
KENTUCKY	271	59	28	616	397	466	419	6	5	1,264
	33.3	55.5	101.2	25.4	29.2	28.0	29.2	207.6	151.3	18.7
	13.9	3.0	1.4	31.6	20.3	23.9	21.5	0.3	0.2	64.8
LOUISIANA	268	6	15	639	328	517	325	0	0	2,723
	30.8	125.4	87.6	23.2	29.5	25.9	29.6	0.0	0.0	12.2
	7.7	0.2	0.4	18.4	9.4	14.9	9.3	0.0	0.0	78.4
MAINE	75	6	6	220	145	163	170	0	0	1,311
	70.7	219.0	172.2	44.6	51.9	50.0	49.0	0.0	0.0	17.6
	4.8	0.4	0.4	14.0	9.2	10.3	10.8	0.0	0.0	83.1
MARYLAND	169	39	21	813	433	674	477	0	4	2,300
	44.1	77.9	100.0	22.8	30.2	24.9	29.5	0.0	279.4	13.9
	5.2	1.2	0.7	24.9	13.3	20.7	14.6	0.0	0.1	70.5
MASSACHUSETTS	247	42	73	1,059	533	725	475	0	0	2,214
	35.6	85.5	58.7	19.9	27.0	23.9	27.7	0.0	0.0	14.1
	7.2	1.2	2.1	30.8	15.5	21.1	13.8	0.0	0.0	64.4
MICHIGAN	746	135	234	2,320	1,478	2,053	1,482	10	24	6,579
	19.2	34.0	36.1	12.9	15.6	13.6	15.5	130.2	85.6	7.9
	8.2	1.5	2.6	25.5	16.2	22.6	16.3	0.1	0.3	72.3
MINNESOTA	297	11	16	1,001	561	660	488	0	14	4,877
	30.4	141.0	98.2	19.6	25.1	23.7	26.5	0.0	78.1	9.1
	5.0	0.2	0.3	16.7	9.4	11.0	8.2	0.0	0.2	81.5

7.16 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 7

STATE	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS-----			AUTO LAND	FL DATA RECORDER	NO GCE	
	LONGITUDE	VERTICAL	LATERAL	APP MODE						
MISSISSIPPI										
ESTIMATED POPULATION	196	21	3	487	385	436	313	45	1	1,780
% STANDARD ERROR	37.6	96.6	209.9	28.4	31.3	29.7	33.0	111.2	465.1	15.5
% WITH CAPABILITY	8.5	0.9	0.1	21.1	16.7	18.9	13.5	2.0	0.0	77.1
MISSOURI										
ESTIMATED POPULATION	542	68	53	1,472	753	1,232	821	38	6	3,537
% STANDARD ERROR	23.3	58.6	62.1	16.4	20.6	17.9	20.6	95.0	137.8	11.1
% WITH CAPABILITY	10.4	1.3	1.0	28.4	14.5	23.8	15.8	0.7	0.1	68.2
MONTANA										
ESTIMATED POPULATION	76	28	22	372	238	367	118	0	0	2,035
% STANDARD ERROR	60.3	109.9	122.8	33.9	41.5	35.0	53.9	0.0	0.0	14.2
% WITH CAPABILITY	3.0	1.1	0.9	14.6	9.4	14.4	4.6	0.0	0.0	80.0
NEBRASKA										
ESTIMATED POPULATION	164	18	13	500	290	501	320	0	0	1,733
% STANDARD ERROR	37.8	78.7	93.5	26.8	32.2	27.0	31.2	0.0	0.0	15.1
% WITH CAPABILITY	7.3	0.8	0.6	22.1	12.8	22.2	14.2	0.0	0.0	76.8
NEVADA										
ESTIMATED POPULATION	201	42	32	788	401	552	353	0	18	1,702
% STANDARD ERROR	39.3	71.3	85.6	23.2	29.5	26.3	31.7	0.0	109.2	15.0
% WITH CAPABILITY	8.0	1.7	1.3	31.5	16.0	22.1	14.1	0.0	0.7	68.1
NEW HAMPSHIRE										
ESTIMATED POPULATION	64	4	25	494	270	452	187	1	0	1,269
% STANDARD ERROR	61.4	136.6	115.3	30.0	38.5	31.6	44.8	305.3	0.0	18.2
% WITH CAPABILITY	3.5	0.2	1.4	27.2	14.9	24.9	10.3	0.1	0.0	69.9
NEW JERSEY										
ESTIMATED POPULATION	572	150	159	1,652	905	1,306	1,005	9	72	2,844
% STANDARD ERROR	21.1	39.2	36.5	15.6	19.1	17.0	18.9	156.7	43.8	12.2
% WITH CAPABILITY	12.3	3.2	3.4	35.7	19.5	28.2	21.7	0.2	1.6	61.4
NEW MEXICO										
ESTIMATED POPULATION	142	36	27	897	499	519	387	3	31	1,552
% STANDARD ERROR	41.3	62.1	81.1	21.8	27.3	26.3	21.6	176.3	64.3	15.2
% WITH CAPABILITY	5.5	1.4	1.1	35.0	19.5	20.3	15.1	0.1	1.2	60.5

7.16 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 5 OF 7

STATE	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	GUIDANCE AND CONTROL EQUIPMENT			AUTO LAND	FL DATA REC'D	NO GCE
				-----AUTOPILOT----- LONGITUDE	AXIS CONTROLS VERTICAL	APP MODE LATERAL			
NEW YORK									
ESTIMATED POPULATION	730	178	245	1,847	1,378	1,605	38	44	5,182
% STANDARD ERROR	19.8	39.5	30.9	14.7	16.4	15.2	85.3	39.5	8.8
% WITH CAPABILITY	9.7	2.4	3.3	24.6	18.3	21.4	0.5	0.6	69.0
NORTH CAROLINA									
ESTIMATED POPULATION	605	56	102	1,969	1,434	1,765	39	0	3,583
% STANDARD ERROR	21.3	79.8	60.7	13.9	15.6	14.6	100.9	0.0	11.0
% WITH CAPABILITY	10.4	1.0	1.8	33.8	24.6	30.3	0.7	0.0	61.5
NORTH DAKOTA									
ESTIMATED POPULATION	111	9	10	327	284	283	3	0	1,556
% STANDARD ERROR	56.9	151.5	153.5	36.1	38.6	38.8	312.3	0.0	16.7
% WITH CAPABILITY	5.9	0.5	0.5	17.3	15.0	14.9	0.2	0.0	82.2
OHIO									
ESTIMATED POPULATION	900	71	47	2,393	1,579	1,972	0	15	6,601
% STANDARD ERROR	18.3	66.7	55.8	12.7	15.2	13.9	0.0	75.0	7.9
% WITH CAPABILITY	9.7	0.8	0.5	25.9	17.1	21.3	0.0	0.2	71.4
OKLAHOMA									
ESTIMATED POPULATION	423	81	75	1,291	924	1,055	2	11	3,102
% STANDARD ERROR	26.2	62.9	67.9	17.2	19.4	18.9	277.9	99.0	11.6
% WITH CAPABILITY	9.0	1.7	1.6	27.5	19.7	22.5	0.1	0.2	66.0
OREGON									
ESTIMATED POPULATION	619	103	33	1,609	994	1,210	40	6	4,357
% STANDARD ERROR	23.2	59.4	76.7	15.3	18.8	17.6	107.3	186.2	9.6
% WITH CAPABILITY	10.1	1.7	0.5	26.3	16.2	19.8	0.7	0.1	71.1
PENNSYLVANIA									
ESTIMATED POPULATION	611	111	87	2,281	1,310	1,900	47	8	5,213
% STANDARD ERROR	22.4	38.1	42.4	13.1	16.4	14.5	92.4	90.4	8.5
% WITH CAPABILITY	7.9	1.4	1.1	29.4	16.9	24.5	0.6	0.1	67.2
RHODE ISLAND									
ESTIMATED POPULATION	27	4	5	154	72	43	12	0	363
% STANDARD ERROR	117.3	268.7	208.5	53.1	74.9	86.9	207.7	0.0	35.2
% WITH CAPABILITY	5.2	0.7	1.0	29.6	13.9	8.3	2.2	0.0	70.1

7.16 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 6 OF 7

STATE	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	GUIDANCE AND CONTROL EQUIPMENT				AUTO LAND	FL DATA REC'D	NO GCE
				-----AUTOPILOT-AXIS CONTROLS-----	LONGITUDE	VERTICAL	LATERAL			
SOUTH CAROLINA	199	13	19	719	549	705	506	1	1	1,476
	40.9	94.6	157.9	24.7	28.1	24.9	29.4	119.0	313.2	16.7
	8.5	0.6	0.8	30.7	23.5	30.1	21.6	0.0	0.1	63.1
SOUTH DAKOTA	74	11	21	279	199	231	161	2	0	1,268
	64.7	152.4	155.8	40.2	46.5	43.5	52.6	490.2	0.0	17.9
	4.8	0.7	1.4	17.9	12.8	14.8	10.4	0.1	0.0	81.5
TENNESSEE	364	37	28	940	699	771	623	0	34	2,236
	25.3	89.2	61.6	19.9	21.8	21.3	23.3	0.0	23.4	14.0
	11.1	1.1	0.9	28.8	21.4	23.6	19.1	0.0	1.1	68.5
TEXAS	2,305	301	552	6,739	4,624	6,265	4,347	19	37	13,857
	11.4	24.1	23.4	7.4	8.6	7.6	8.9	64.6	47.3	5.3
	10.8	1.4	2.6	31.7	21.7	29.5	20.4	0.1	0.2	65.1
UTAH	89	16	17	452	280	387	288	0	21	901
	56.8	134.7	101.9	30.3	38.3	32.9	37.3	0.0	109.9	21.5
	6.5	1.2	1.2	33.1	20.5	28.4	21.1	0.0	1.5	66.0
VERMONT	33	8	7	228	138	179	106	0	0	418
	101.4	92.9	92.9	43.2	54.4	49.1	62.6	0.0	0.0	30.6
	4.8	1.2	1.0	32.8	19.8	25.7	15.3	0.0	0.0	60.1
VIRGINIA	631	72	77	1,439	1,007	1,257	965	22	39	2,704
	21.0	48.5	47.5	16.5	18.7	17.2	19.1	96.1	69.9	12.4
	15.0	1.7	1.8	34.2	23.9	29.9	22.9	0.5	0.9	64.2
WASHINGTON	277	30	87	994	681	726	628	2	37	6,670
	36.1	52.8	61.1	20.3	23.4	22.4	24.6	164.6	118.8	7.6
	3.4	0.4	1.1	12.4	8.5	9.0	7.8	0.0	0.5	83.1

7.16 1991 GENERAL AVIATION AIRCRAFT WITH GUIDANCE AND CONTROL EQUIPMENT  
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	GUIDANCE AND CONTROL EQUIPMENT									
	FLIGHT DIRECT	EFIS	FL MGT SYSTEM	-----AUTOPILOT-AXIS CONTROLS-----				AUTO LAND	FL DATA REC'D	NO GCE
				LONGITUDE	VERTICAL	LATERAL	APP MODE			
WEST VIRGINIA										
ESTIMATED POPULATION	99	18	2	458	273	340	229	1	0	849
% STANDARD ERROR	57.9	121.6	507.4	31.0	39.4	34.8	41.7	253.3	0.0	23.3
% WITH CAPABILITY	7.5	1.4	0.2	34.5	20.6	25.6	17.3	0.1	0.0	64.0
WISCONSIN										
ESTIMATED POPULATION	496	39	30	1,578	987	1,319	906	0	36	4,397
% STANDARD ERROR	23.8	63.3	70.4	16.1	19.5	17.4	20.2	0.0	82.9	9.8
% WITH CAPABILITY	8.2	0.6	0.5	26.1	16.3	21.8	15.0	0.0	0.6	72.6
WYOMING										
ESTIMATED POPULATION	109	0	18	259	107	233	108	0	0	637
% STANDARD ERROR	61.3	0.0	154.9	40.6	49.6	42.7	52.0	0.0	0.0	25.1
% WITH CAPABILITY	11.4	0.0	1.9	27.1	11.1	24.4	11.3	0.0	0.0	66.5
PUERTO RICO										
ESTIMATED POPULATION	56	2	7	90	95	86	66	2	0	478
% STANDARD ERROR	91.9	306.1	117.1	61.9	62.2	65.1	74.6	181.4	0.0	29.9
% WITH CAPABILITY	9.6	0.3	1.2	15.5	16.4	14.9	11.4	0.3	0.0	82.6
OTHER U.S. TERRITORIES										
ESTIMATED POPULATION	13	1	1	30	29	25	17	0	6	71
% STANDARD ERROR	140.4	313.2	313.2	107.4	108.2	120.3	140.7	0.0	225.1	66.5
% WITH CAPABILITY	12.4	1.1	1.1	28.2	27.3	23.5	16.3	0.0	5.8	67.1
TOTAL										
ESTIMATED POPULATION	22,609	3,321	3,654	72,052	47,936	60,047	43,152	720	861	183,472
% STANDARD ERROR	2.6	8.1	7.8	1.5	1.8	1.7	2.1	22.8	13.3	0.6
% WITH CAPABILITY	8.5	1.3	1.4	27.2	18.1	22.7	16.3	0.3	0.3	69.2

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.17 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
FIXED WING		
FIXED WING - PISTON		
1 ENG: 1-3 SEATS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	59,965 1.2 67.9	62,011 1.2 70.2
1 ENG: 4+ SEATS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	114,326 0.3 96.8	112,128 0.4 95.0
1 ENGINE: TOTAL ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	174,291 0.5 84.5	174,139 0.5 84.4
2 ENG: 1-6 SEATS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	16,662 1.0 96.0	16,423 1.0 94.6
2 ENG: 7+ SEATS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	7,962 1.5 94.1	7,368 2.0 87.1
2 ENGINE: TOTAL ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	24,624 0.8 95.4	23,791 0.9 92.1
PISTON: OTHER ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	176 19.1 64.7	127 22.3 46.6
PISTON: TOTAL ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	199,091 0.4 85.6	198,057 0.4 85.2



AIRCRAFT TYPE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
FIXED WING - TURBOPROP		
2 ENG: 1-12 SEATS		
ESTIMATED POPULATION	4,174	4,000
% STANDARD ERROR	2.0	2.5
% WITH CAPABILITY	93.1	89.2
2 ENG: 13+ SEATS		
ESTIMATED POPULATION	1,177	1,180
% STANDARD ERROR	2.8	2.8
% WITH CAPABILITY	93.9	94.2
2 ENGINE: TOTAL		
ESTIMATED POPULATION	5,351	5,180
% STANDARD ERROR	1.7	2.0
% WITH CAPABILITY	93.3	90.3
TURBOPROP: OTHER		
ESTIMATED POPULATION	530	334
% STANDARD ERROR	2.9	8.2
% WITH CAPABILITY	97.5	61.5
TURBOPROP: TOTAL		
ESTIMATED POPULATION	5,881	5,514
% STANDARD ERROR	1.6	2.0
% WITH CAPABILITY	93.7	87.8
FIXED WING - TURBOJET		
2 ENGINE TURBOJET		
ESTIMATED POPULATION	4,280	2,410
% STANDARD ERROR	1.2	5.8
% WITH CAPABILITY	97.6	55.0
TURBOJET: OTHER		
ESTIMATED POPULATION	545	333
% STANDARD ERROR	3.8	9.7
% WITH CAPABILITY	85.5	52.2
TURBOJET: TOTAL		
ESTIMATED POPULATION	4,825	2,743
% STANDARD ERROR	1.2	5.3
% WITH CAPABILITY	96.1	54.6

7.17 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
<b>FIXED WING: TOTAL</b>		
ESTIMATED POPULATION	209,797	206,314
‡ STANDARD ERROR	0.4	0.4
‡ WITH CAPABILITY	86.1	84.6
<b>ROTORCRAFT</b>		
<b>PISTON</b>		
ESTIMATED POPULATION	4,016	873
‡ STANDARD ERROR	3.6	17.1
‡ WITH CAPABILITY	68.7	14.9
<b>TURBINE</b>		
ESTIMATED POPULATION	4,276	3,548
‡ STANDARD ERROR	2.1	4.1
‡ WITH CAPABILITY	92.4	76.7
<b>ROTORCRAFT: TOTAL</b>		
ESTIMATED POPULATION	8,292	4,421
‡ STANDARD ERROR	2.0	4.7
‡ WITH CAPABILITY	79.2	42.2
<b>OTHER AIRCRAFT</b>		
ESTIMATED POPULATION	1,543	153
‡ STANDARD ERROR	8.6	27.0
‡ WITH CAPABILITY	14.3	1.4
<b>TOTAL</b>		
ESTIMATED POPULATION	219,633	210,888
‡ STANDARD ERROR	0.4	0.4
‡ WITH CAPABILITY	82.9	79.6

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.18 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
<b>EXECUTIVE</b>		
ESTIMATED POPULATION	10,427	8,780
% STANDARD ERROR	4.2	4.9
% WITH CAPABILITY	96.6	81.3
<b>BUSINESS</b>		
ESTIMATED POPULATION	32,735	32,570
% STANDARD ERROR	3.1	3.1
% WITH CAPABILITY	96.7	96.2
<b>PERSONAL</b>		
ESTIMATED POPULATION	106,813	109,273
% STANDARD ERROR	1.3	1.2
% WITH CAPABILITY	86.8	88.8
<b>INSTRUCTIONAL</b>		
ESTIMATED POPULATION	17,873	17,011
% STANDARD ERROR	4.6	4.8
% WITH CAPABILITY	92.2	87.8
<b>AERIAL APPLICATION</b>		
ESTIMATED POPULATION	5,641	1,669
% STANDARD ERROR	6.0	14.4
% WITH CAPABILITY	74.1	21.9
<b>AERIAL OBSERVATION</b>		
ESTIMATED POPULATION	4,997	4,550
% STANDARD ERROR	8.9	9.5
% WITH CAPABILITY	92.7	84.4
<b>OTHER WORK USE</b>		
ESTIMATED POPULATION	1,336	1,132
% STANDARD ERROR	15.4	16.4
% WITH CAPABILITY	75.8	64.2
<b>COMMUTER AIR CARRIER</b>		
ESTIMATED POPULATION	840	842
% STANDARD ERROR	14.3	14.1
% WITH CAPABILITY	90.9	91.1

7.18 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY PRIMARY USE

PRIMARY USE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
AIR TAXI		
ESTIMATED POPULATION	5,453	5,057
% STANDARD ERROR	7.1	7.5
% WITH CAPABILITY	95.0	88.1
OTHER		
ESTIMATED POPULATION	3,456	3,052
% STANDARD ERROR	9.3	10.3
% WITH CAPABILITY	82.6	72.9
INACTIVE		
ESTIMATED POPULATION	29,691	26,461
% STANDARD ERROR	1.9	2.2
% WITH CAPABILITY	56.8	50.6
TOTAL		
ESTIMATED POPULATION	219,633	210,888
% STANDARD ERROR	0.4	0.4
% WITH CAPABILITY	82.9	79.6

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.19 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
ALASKAN ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	7,643 6.4 82.0	8,371 6.2 89.8
CENTRAL ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	12,050 5.8 78.3	11,946 5.9 77.6
EASTERN ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	24,349 4.0 81.3	23,599 4.0 78.8
GREAT LAKES ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	38,202 3.1 81.0	38,016 3.1 80.6
NEW ENGLAND ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	8,680 7.0 83.6	8,603 7.1 82.8
NORTHWEST MOUNTAIN ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	22,235 4.1 82.5	21,094 4.3 78.3
SOUTHERN ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	36,050 3.2 84.2	34,331 3.3 80.2
SOUTHWESTERN ESTIMATED POPULATION ‡ STANDARD ERROR ‡ WITH CAPABILITY	29,444 3.6 84.6	26,367 3.8 75.7

7.19 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
WESTERN-PACIFIC		
ESTIMATED POPULATION	40,980	38,559
% STANDARD ERROR	2.9	3.0
% WITH CAPABILITY	84.9	79.9
TOTAL		
ESTIMATED POPULATION	219,633	210,888
% STANDARD ERROR	0.4	0.4
% WITH CAPABILITY	82.9	79.6

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.20 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 1 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
<b>ALABAMA</b>		
ESTIMATED POPULATION	3,288	3,283
% STANDARD ERROR	11.4	11.6
% WITH CAPABILITY	81.6	81.5
<b>ALASKA</b>		
ESTIMATED POPULATION	7,643	8,371
% STANDARD ERROR	6.4	6.2
% WITH CAPABILITY	82.0	89.8
<b>ARIZONA</b>		
ESTIMATED POPULATION	5,389	5,150
% STANDARD ERROR	8.7	9.0
% WITH CAPABILITY	81.8	78.2
<b>ARKANSAS</b>		
ESTIMATED POPULATION	2,440	1,961
% STANDARD ERROR	13.1	14.9
% WITH CAPABILITY	86.7	69.7
<b>CALIFORNIA</b>		
ESTIMATED POPULATION	32,792	31,022
% STANDARD ERROR	3.3	3.4
% WITH CAPABILITY	85.2	80.6
<b>COLORADO</b>		
ESTIMATED POPULATION	4,367	4,143
% STANDARD ERROR	9.9	10.3
% WITH CAPABILITY	78.7	74.7
<b>CONNECTICUT</b>		
ESTIMATED POPULATION	2,015	1,985
% STANDARD ERROR	14.7	15.0
% WITH CAPABILITY	86.1	84.8
<b>DELAWARE</b>		
ESTIMATED POPULATION	1,012	922
% STANDARD ERROR	19.7	21.4
% WITH CAPABILITY	89.3	81.3

7.20 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 2 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
DISTRICT OF COLUMBIA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	28 79.0 26.5	46 86.5 43.8
FLORIDA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	14,046 5.3 85.0	13,384 5.5 81.0
GEORGIA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	4,957 9.3 83.3	4,814 9.4 80.9
HAWAII ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	559 26.7 86.4	499 28.7 77.1
IDAHO ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	2,144 13.9 89.6	1,949 14.5 81.5
ILLINOIS ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	7,324 7.7 84.6	7,265 7.7 83.9
INDIANA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	3,728 10.6 80.3	3,660 10.8 78.8
IOWA ESTIMATED POPULATION % STANDARD ERROR % WITH CAPABILITY	2,504 13.0 73.2	2,501 13.1 73.2



7.20 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 3 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
KANSAS		
ESTIMATED POPULATION	3,530	3,469
% STANDARD ERROR	11.0	11.2
% WITH CAPABILITY	78.0	76.7
KENTUCKY		
ESTIMATED POPULATION	1,639	1,548
% STANDARD ERROR	16.6	17.3
% WITH CAPABILITY	84.1	79.4
LOUISIANA		
ESTIMATED POPULATION	2,909	2,833
% STANDARD ERROR	11.9	12.2
% WITH CAPABILITY	83.7	81.5
MAINE		
ESTIMATED POPULATION	1,220	1,299
% STANDARD ERROR	18.7	17.9
% WITH CAPABILITY	77.4	82.4
MARYLAND		
ESTIMATED POPULATION	2,928	2,842
% STANDARD ERROR	12.4	12.5
% WITH CAPABILITY	89.8	87.2
MASSACHUSETTS		
ESTIMATED POPULATION	2,843	2,763
% STANDARD ERROR	12.5	12.8
% WITH CAPABILITY	82.7	80.4
MICHIGAN		
ESTIMATED POPULATION	7,405	7,285
% STANDARD ERROR	7.6	7.6
% WITH CAPABILITY	81.4	80.0
MINNESOTA		
ESTIMATED POPULATION	4,940	4,881
% STANDARD ERROR	9.2	9.2
% WITH CAPABILITY	82.5	81.6

7.20 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 4 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
MISSISSIPPI		
ESTIMATED POPULATION	1,967	1,555
% STANDARD ERROR	15.0	16.9
% WITH CAPABILITY	85.2	67.4
MISSOURI		
ESTIMATED POPULATION	4,181	4,282
% STANDARD ERROR	10.2	10.1
% WITH CAPABILITY	80.6	82.5
MONTANA		
ESTIMATED POPULATION	2,099	2,010
% STANDARD ERROR	14.3	14.7
% WITH CAPABILITY	82.5	79.0
NEBRASKA		
ESTIMATED POPULATION	1,835	1,694
% STANDARD ERROR	14.8	15.5
% WITH CAPABILITY	81.3	75.1
NEVADA		
ESTIMATED POPULATION	2,205	1,865
% STANDARD ERROR	13.8	15.1
% WITH CAPABILITY	88.2	74.6
NEW HAMPSHIRE		
ESTIMATED POPULATION	1,550	1,561
% STANDARD ERROR	16.7	16.9
% WITH CAPABILITY	85.4	86.0
NEW JERSEY		
ESTIMATED POPULATION	3,795	3,430
% STANDARD ERROR	10.6	11.2
% WITH CAPABILITY	82.0	74.1
NEW MEXICO		
ESTIMATED POPULATION	1,856	1,647
% STANDARD ERROR	14.8	16.1
% WITH CAPABILITY	72.4	64.2

7.20 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 5 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
NEW YORK		
ESTIMATED POPULATION	5,893	6,143
% STANDARD ERROR	8.4	8.3
% WITH CAPABILITY	78.5	81.8
NORTH CAROLINA		
ESTIMATED POPULATION	4,928	4,845
% STANDARD ERROR	9.3	9.3
% WITH CAPABILITY	84.6	83.2
NORTH DAKOTA		
ESTIMATED POPULATION	1,498	1,336
% STANDARD ERROR	17.5	18.4
% WITH CAPABILITY	79.1	70.6
OHIO		
ESTIMATED POPULATION	7,176	7,409
% STANDARD ERROR	7.7	7.6
% WITH CAPABILITY	77.6	80.2
OKLAHOMA		
ESTIMATED POPULATION	3,809	3,696
% STANDARD ERROR	10.5	10.8
% WITH CAPABILITY	81.1	78.7
OREGON		
ESTIMATED POPULATION	5,207	4,939
% STANDARD ERROR	8.8	9.1
% WITH CAPABILITY	85.0	80.7
PENNSYLVANIA		
ESTIMATED POPULATION	6,051	5,819
% STANDARD ERROR	8.2	8.4
% WITH CAPABILITY	78.0	75.0
RHODE ISLAND		
ESTIMATED POPULATION	457	463
% STANDARD ERROR	31.8	31.5
% WITH CAPABILITY	88.1	89.2

7.20 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 6 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
<b>SOUTH CAROLINA</b>		
ESTIMATED POPULATION	1,976	1,788
% STANDARD ERROR	14.8	15.7
% WITH CAPABILITY	84.5	76.5
<b>SOUTH DAKOTA</b>		
ESTIMATED POPULATION	1,245	1,118
% STANDARD ERROR	18.6	19.5
% WITH CAPABILITY	80.0	71.8
<b>TENNESSEE</b>		
ESTIMATED POPULATION	2,785	2,657
% STANDARD ERROR	12.5	12.9
% WITH CAPABILITY	85.3	81.4
<b>TEXAS</b>		
ESTIMATED POPULATION	18,430	16,231
% STANDARD ERROR	4.6	5.0
% WITH CAPABILITY	86.6	76.3
<b>UTAH</b>		
ESTIMATED POPULATION	1,160	1,112
% STANDARD ERROR	19.1	19.8
% WITH CAPABILITY	89.0	81.5
<b>VERMONT</b>		
ESTIMATED POPULATION	595	532
% STANDARD ERROR	26.8	29.0
% WITH CAPABILITY	85.5	76.5
<b>VIRGINIA</b>		
ESTIMATED POPULATION	3,489	3,256
% STANDARD ERROR	10.9	11.3
% WITH CAPABILITY	82.9	77.3
<b>WASHINGTON</b>		
ESTIMATED POPULATION	6,386	6,117
% STANDARD ERROR	8.0	8.2
% WITH CAPABILITY	79.5	76.2

7.20 1991 GENERAL AVIATION AIRCRAFT EQUIPPED WITH AN ELECTRICAL SYSTEM AND/OR HAS AN EMERGENCY LOCATOR TRANSMITTER  
BY STATE OF BASED AIRCRAFT

PAGE 7 OF 7

STATE	ELECTRICAL SYSTEM	EMERGENCY LOCATOR TRANSMITTER
<b>WEST VIRGINIA</b>		
ESTIMATED POPULATION	1,153	1,140
% STANDARD ERROR	20.2	20.3
% WITH CAPABILITY	86.9	86.0
<b>WISCONSIN</b>		
ESTIMATED POPULATION	4,886	5,062
% STANDARD ERROR	9.4	9.2
% WITH CAPABILITY	80.7	83.6
<b>WYOMING</b>		
ESTIMATED POPULATION	873	824
% STANDARD ERROR	21.9	22.6
% WITH CAPABILITY	91.1	86.0
<b>PUERTO RICO</b>		
ESTIMATED POPULATION	407	401
% STANDARD ERROR	30.3	30.7
% WITH CAPABILITY	70.4	69.2
<b>OTHER U.S. TERRITORIES</b>		
ESTIMATED POPULATION	92	80
% STANDARD ERROR	57.7	60.5
% WITH CAPABILITY	86.8	75.7
<b>TOTAL</b>		
ESTIMATED POPULATION	219,633	210,888
% STANDARD ERROR	0.4	0.4
% WITH CAPABILITY	82.9	79.6

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

7.21 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IFR FLIGHT PLANS  
BY TRANSPONDER EQUIPPED AIRCRAFT BY AIRCRAFT TYPE

PAGE 1 OF 2

AIRCRAFT TYPE	ESTIMATED NUMBER AIRCRAFT FLOWN IFR	PERCENT STANDARD ERROR	ESTIMATED PERCENT ACTIVE FLOWN IFR	TOTAL HOURS FLOWN IFR	PERCENT STANDARD ERROR	PERCENT OF TOTAL HOURS	EST. NUMBER FLOWN IFR WITH TRANSPONDER	PERCENT STANDARD ERROR (*)	PERCENT AIRCRAFT FLOWN TRANSPONDER
<b>FIXED WING</b>									
<b>FIXED WING - PISTON</b>									
1 ENG: 1-3 SEATS	3,458	12.3	6.2	113,276	12.3	7.4	458	10.7	13.2
1 ENG: 4+ SEATS	48,338	2.4	49.1	2,726,116	2.4	53.0	23,449	2.2	48.5
1 ENGINE: TOTAL	51,796	2.4	33.6	2,839,392	2.4	42.5	23,907	2.2	46.2
2 ENG: 1-6 SEATS	12,095	3.3	89.2	1,093,677	3.3	93.2	8,783	3.1	72.6
2 ENG: 7+ SEATS	7,285	2.5	96.4	785,264	2.5	95.5	6,810	1.4	93.5
2 ENGINE: TOTAL	19,380	2.3	91.8	1,878,942	2.2	94.2	15,594	1.9	80.5
PISTON: OTHER	196	24.3	100.0	6,002	24.3	100.0	184	12.0	94.1
PISTON: TOTAL	71,372	1.8	40.7	4,724,336	1.7	54.4	39,686	1.5	55.6
<b>FIXED WING - TURBOPROP</b>									
2 ENG: 1-12 SEATS	4,051	2.2	100.0	945,275	2.2	100.0	3,603	2.5	89.0
2 ENG: 13+ SEATS	633	11.3	100.0	327,550	11.3	100.0	323	10.4	51.0
2 ENGINE: TOTAL	4,684	2.4	100.0	1,272,825	3.3	100.0	3,926	2.4	83.8
TURBOPROP: OTHER	218	20.4	41.7	59,008	20.4	83.6	172	9.0	79.2
TURBOPROP: TOTAL	4,901	2.5	99.6	1,331,833	3.3	100.0	4,099	2.4	83.6

7.21 1991 GENERAL AVIATION ACTIVE AIRCRAFT AND TOTAL HOURS FLOWN UNDER IFR FLIGHT PLANS  
BY TRANSPONDER EQUIPPED AIRCRAFT BY AIRCRAFT TYPE

PAGE 2 OF 2

AIRCRAFT TYPE	ESTIMATED NUMBER AIRCRAFT FLOWN IFR	PERCENT STANDARD ERROR	ESTIMATED PERCENT ACTIVE FLOWN IFR	TOTAL HOURS FLOWN IFR	PERCENT STANDARD ERROR	PERCENT OF TOTAL HOURS	EST. NUMBER FLOWN IFR WITH TRANSPONDER	PERCENT STANDARD ERROR (*)	PERCENT AIRCRAFT FLOWN TRANSPONDER
FIXED WING - TURBOJET									
2 ENGINE TURBOJET	4,149	1.7	100.0	1,180,654	1.7	100.0	3,891	1.7	93.8
TURBOJET: OTHER	366	10.5	100.0	74,208	10.5	100.0	221	9.2	60.3
TURBOJET: TOTAL	4,516	1.7	100.0	1,254,862	1.7	100.0	4,112	1.7	91.1
FIXED WING: TOTAL	80,789	1.6	43.8	7,311,031	1.3	66.0	47,896	1.3	59.3
ROTORCRAFT									
PISTON	121	60.5	4.9	9,182	60.5	13.1	16	54.1	13.5
TURBINE	425	13.0	11.1	19,824	19.0	4.2	215	11.4	50.7
ROTORCRAFT: TOTAL	545	19.9	8.7	29,006	23.1	5.3	232	11.3	42.5
OTHER AIRCRAFT	189	52.2	2.5	3,639	52.2	3.6	1	0.0	0.4
TOTAL	81,523	1.6	41.1	7,343,677	1.3	62.7	48,128	1.3	59.0

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

(\*) INCLUDES MODE A, MODE C, AND MODES

## CHAPTER VIII

### NATIONAL AIRSPACE SYSTEM (NAS) CAPABILITY GROUPS BASED ON AVIONICS

Estimates of the number of aircraft containing various individual pieces of avionics equipment (the basis for Chapter VII) do not provide enough information to determine an aircraft's overall ability to use the National Airspace System (NAS). In order to obtain a certain capability or privilege, an aircraft may be required to have several pieces of avionics gear. This requirement led to the study of groups of avionics equipment, rather than individual pieces, and to the development of two avionics capability group classifications, hierarchical and nonhierarchical. These two capability group classifications provide a framework for the general aviation fleet by relating airborne avionics equipment groups to aircraft capability to perform in the NAS, and they facilitate analysis of the activity and characteristics of the general aviation fleet.

This chapter presents two figures and 11 tables on hierarchical and nonhierarchical statistics. Figures 8.1 and 8.2 list the hierarchical and nonhierarchical capability groups, respectively. Tables 8.1-8.5 consider hierarchical capability groups in five different categories, by: aircraft type, age of aircraft, total flight hour groups, primary use, and region of based aircraft, respectively. Tables 8.7-8.11 present nonhierarchical capability groups in the same five categories. The table in between these two groups, Table 8.6, is a comparison between nonhierarchical and hierarchical capability groups.

The hierarchical class consists of avionics groupings which comply with FAA requirements for use in various aspects of the NAS. FAA regulations address three basic capabilities, the capability to: (1) fly in different segments of the airspace; (2) fly under visual flight rules (VFR) and instrument flight rules (IFR); and (3) land at different classes of airports. These groups are called hierarchical because, in general, the avionics equipment and associated capabilities for one capability group are a subset of the avionics equipment and associated capabilities for the next higher group, and so on.

The second class of capability groups, nonhierarchical, consists of avionics groupings not required by FAA regulations, but which give an aircraft additional capability in the NAS. The nonhierarchical groups were formed by grouping together component pieces of avionics equipment which, as a whole, form a complete avionics system. A complete avionics system enables an aircraft to make full use of a communications, navigation, or surveillance system in the NAS.

Some observations derived from the tables in this chapter include:

- o The aircraft type increased in sophistication as the level of avionics increased (Tables 8.1 and 8.7).
- o Aircraft in the more sophisticated capability groups were, on average, newer aircraft than those in less sophisticated capability groups (Tables 8.2 and 8.8).



- o Nearly 57 percent of the general aviation population fell into three age groups: 10-14 years, 20.3 percent; 15-19 years, 17.2 percent; and 35+ years, 19.4 percent.
- o In both the hierarchical and nonhierarchical capability groups, aircraft containing more avionics equipment and capabilities were flown, on average, more hours than those with less avionics equipment (Tables 8.3 and 8.9).
- o In general, the more sophisticated the hierarchical capability groups, the more the predominant use shifted from personal, to business/personal, to corporate/business (Table 8.4).
- o As nonhierarchical capability groups became more sophisticated, the predominant primary use of the aircraft changed from personal, to business/personal, to business/executive. For example, executive aircraft alone constituted about 37 percent of the aircraft reporting a radar altimeter, yet executive aircraft composed only 4.1 percent of the general aviation fleet (Table 8.10).

Table 8.6 cross-tabulates the two capability groups and reveals the following about the general aviation fleet:

- o More than 31 percent of the general aviation aircraft had avionics equipment enabling them to fly above 18,000 feet in positive controlled airspace.
- o The percent of the 1991 general aviation fleet that cannot fly above 12,500 feet due only to avionics limitations remained unchanged from 1990's figure of roughly 34 percent.
- o Table 8.6 indicates that those aircraft in the least sophisticated, nonhierarchical capability groups constituted the bulk of the least sophisticated, hierarchical capability groups. Of the percent of aircraft possessing no nonhierarchical capability group equipment (i.e., no regulatory avionics), approximately 72 percent fell into the hierarchical capability groups 1, 2, and 3. Similarly, those aircraft in the most sophisticated nonhierarchical capability groups were also in the most sophisticated hierarchical capability groups. For example, 89 percent of the aircraft possessing a complete Instrument Landing System (ILS) and a radar altimeter fell into the hierarchical capability group 8.
- o In 1989, LORAN-C, Long Range Navigation equipment (LRNAV) was expanded to include: 1) Visual Flight Rules (VFR) only; 2) Instrument Flight Rules (IFR) navigation; and 3) IFR approach. These additions have had a strong impact on the reported total number of aircraft with LRNAV equipment. In 1983, only 9,393 aircraft (3.6 percent of the total population) reported any type of LRNAV equipment. In 1986, this number jumped to 47,210 (17.6 percent of the population). Since then, the number of aircraft with LRNAV equipment has risen steadily, from

61,981 aircraft in 1987, to 83,855 aircraft in 1989, to a total of 103,960 aircraft in 1991 (39.2 percent of the population) this year. This increase most likely reflects both the specific addition of LORAN-C and Omega to the survey form and a rise in the number of aircraft containing LORAN-C receivers.

**Figure 8.1**  
**HIERARCHICAL CAPABILITY GROUPS**

GROUP	AVIONICS	CAPABILITIES
1	No Regulatory Avionics	<p>A. • Up to and including 12,500 feet Mean Sea Level (MSL).  • Gliders —Up to and including 18,000 feet MSL.  • ADF—Colored airways below 12,500 feet MSL.  • VOR or RNAV—VOR airways below 12,500 feet MSL.  • RNAV—Low altitude RNAV airways below 12,500 feet MSL.</p> <p>B. • VFR flight, day and night.</p> <p>C. • Uncontrolled airports.</p>
2	Two-way Communications	<p>A. • Up to and including 12,500 feet MSL.  • Gliders—Up to and including 18,000 feet MSL.</p> <p>B. • VFR flight, day and night.</p> <p>C. • Non-TCA controlled airports.  • Group III TCAs.  • Helicopters with 4096 code transponders  Group III TCAs.  • All helicopters—Group I and II TCAs below 1,000 feet Above Ground Level (AGL).</p> <p><b>Note:</b> Air taxis with navigation system and transponder: Group II TCAs.</p> <p>Air taxis with navigation system, transponder and altitude reporting:  Group I TCAs and non-positive controlled airspace.</p> <p>Air taxis with navigation system, DME, transponder and altitude reporting:  Group I TCAs and positive controlled airspace.</p>
3	Two-way Communications Two Systems—Air Taxis Very High Frequency Omni- Directional Radio Range (VOR) or Automatic Direction Finder (ADF) or Area Navigational Equipment (RNAV)	<p>A. • Up to and including 12,500 feet MSL.  • Gliders—Up to and including 18,000 feet MSL.  • ADF—Colored airways below 12,500 feet MSL.  • VOR or RNAV—VOR airways below 12,500 feet MSL.  • RNAV—Low altitude RNAV airways below 12,500 feet MSL.</p> <p>B. • IFR flight.</p> <p>C. • Non-TCA controlled airways.  • Group III TCAs.  • Helicopters with 4096 transponders—Group II TCAs.  • All helicopters—Group I and II TCAs below 1,000 feet AGL.</p>

**Figure 8.1**  
**HIERARCHICAL CAPABILITY GROUPS (Cont.)**

GROUP	AVIONICS	CAPABILITIES
<b>4</b>	Two-way Communications Two Systems—Air Taxis 4096 Code Transponder VOR or RNAV	<ul style="list-style-type: none"> <li>A. • Up to and including 12,500 feet MSL.</li> <li>• Gliders—Up to and including 18,000 feet MSL.</li> <li>• VOR airways below 12,500 feet MSL.</li> <li>• RNAV—Low altitude RNAV airways below 12,500 feet MSL.</li> <li>B. • IFR flight.</li> <li>C. • Non-TCA controlled airports.</li> <li>• Group II TCAs.</li> <li>• Helicopters—Group I TCAs below 1,000 feet AGL.</li> </ul>
<b>5</b>	4096 Code Transponder Altitude Encoding Equipment	<ul style="list-style-type: none"> <li>A. • Non-positive controlled airspace.</li> <li>B. • VFR flight, day and night.</li> <li>C. • Uncontrolled airports.</li> <li>• Group III TCAs.</li> </ul>
<b>6</b>	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment	<ul style="list-style-type: none"> <li>A. • Non-positive controlled airspace.</li> <li>B. • VFR flight, day and night.</li> <li>C. • Non-TCA controlled airports.</li> <li>• Group III TCAs.</li> <li>• Helicopters—Group I TCAs.</li> </ul>
<b>7</b>	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment VOR	<ul style="list-style-type: none"> <li>A. • Non-positive controlled airspace.</li> <li>• VOR airways.</li> <li>B. • IFR flight.</li> <li>C. • Group I TCAs.</li> </ul>
<b>8</b>	Two-way Communications 4096 Code Transponder Altitude Encoding Equipment VOR and/or RNAV Distance Measuring Equipment (DME)	<ul style="list-style-type: none"> <li>A. • Positive controlled airspace.</li> <li>• Jet routes.</li> <li>• RNAV—RNAV routes.</li> <li>B. • IFR flight.</li> <li>C. • Group I TCAs.</li> </ul>

**Figure 8.2**  
**NONHIERARCHICAL CAPABILITY GROUPS**

<b>GROUP</b>	<b>AVIONICS</b>	<b>CAPABILITIES</b>
<b>1</b>	Localizer (LOC)	Partial use of airport Instrument Landing System (ILS).
<b>2</b>	LOC Marker Beacon (MB)	Partial use of airport ILS.
<b>3</b>	LOC MB Glide Slope (GS)	Full use of airport ILS.
<b>4</b>	Long Range Navigation (LRNAV) (LORAN, Omega or other) Visual Flight Rules only, ENF	Area navigation over long distances and large bodies of water.
<b>5</b>	Radar Altimeter (RA)	Determination of altitude above level of terrain.
<b>6</b>	Microwave Landing System (MLS)	More accurate and flexible landing approaches, especially at airports with mountains and large buildings nearby.
<b>7</b>	MLS Instrument Landing System (ILS)	Backup landing systems.
<b>8</b>	LRNAV MLS Thunderstorm Detection Equipment Weather Radar Traffic Alert and Collision Avoidance System (TCAS I and TCAS II) Mode S Ground Proximity Warning System (GPWS) Global Positioning System (GPS)	Sophisticated communications, navigation, and surveillance capabilities.

8.1 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 1 OF 3

AIRCRAFT TYPE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
TOTAL								
FIXED WING - PISTON								
SINGLE ENGINE 1-3 SEATS	ESTIMATE	9,163	14,024	3,058	683	4,048	26,862	2,348
	% STD. ERROR	28,137	6.2	5.2	12.2	26.2	2.9	13.6
	ROW %	31.9	10.4	15.9	3.5	10.4	30.4	2.7
SINGLE ENGINE 4+ SEATS	ESTIMATE	4,269	1,492	5,393	6,315	2,245	48,196	48,986
	% STD. ERROR	8.5	15.0	7.7	8.0	14.0	2.2	2.1
	ROW %	3.6	1.3	4.6	5.3	1.9	40.8	41.5
TWO ENGINES 1-6 SEATS	ESTIMATE	632	37	218	564	374	1,662	13,748
	% STD. ERROR	24.6	30.0	34.5	26.1	30.5	15.4	2.4
	ROW %	3.6	0.2	1.3	3.2	2.2	9.6	79.2
TWO ENGINES 7+ SEATS	ESTIMATE	535	50	69	166	200	789	6,502
	% STD. ERROR	20.3	76.5	49.7	35.1	41.3	16.3	2.8
	ROW %	6.3	0.6	0.8	2.0	2.4	9.3	76.8
PISTON OTHER	ESTIMATE	88	0	0	70	5	62	48
	% STD. ERROR	39.5	0.0	0.0	30.5	86.8	53.4	44.1
	ROW %	32.4	0.0	0.0	25.7	1.8	22.8	17.6
FIXED WING - TURBOPROP	ESTIMATE	164	11	38	57	49	13	4,106
	% STD. ERROR	29.1	179.7	91.4	60.5	61.8	63.9	2.0
	ROW %	3.7	0.2	0.8	1.3	1.1	0.3	91.6
2 ENGINES 1-12 SEATS	ESTIMATE	0.4	0.1	0.2	0.5	1.3	0.0	5.0
	% STD. ERROR							
	ROW %							

8.1 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 2 OF 3

AIRCRAFT TYPE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
2 ENGINES 13+ SEATS	ESTIMATE	0	5	17	44	19	51	1,101
	‡ STD. ERROR	0.0	81.3	53.4	26.0	80.0	75.3	4.1
	ROW ‡	0.0	0.4	1.4	3.5	1.5	4.1	87.9
	COLUMN ‡	0.0	0.0	0.2	1.1	0.2	0.1	1.3
TURBOPROP OTHER	ESTIMATE	70	98	5	2	19	31	195
	‡ STD. ERROR	36.4	45.3	223.7	449.0	135.3	55.8	23.6
	ROW ‡	12.9	18.0	0.9	0.4	3.5	5.7	35.8
	COLUMN ‡	0.4	0.5	0.0	0.1	0.2	0.0	0.2
TOTAL								
FIXED WING - TURBOJET	ESTIMATE	0	22	252	45	36	56	3,894
	‡ STD. ERROR	0.0	69.5	26.1	59.9	58.0	72.4	2.4
	ROW ‡	0.0	0.5	5.7	1.0	0.8	1.3	88.8
	COLUMN ‡	0.0	0.1	2.3	1.2	0.5	0.1	4.7
2 ENGINES	ESTIMATE	0	22	252	45	36	56	3,894
	‡ STD. ERROR	0.0	69.5	26.1	59.9	58.0	72.4	2.4
	ROW ‡	0.0	0.5	5.7	1.0	0.8	1.3	88.8
	COLUMN ‡	0.0	0.1	2.3	1.2	0.5	0.1	4.7
TURBOJET OTHER	ESTIMATE	12	0	76	7	3	34	419
	‡ STD. ERROR	75.8	0.0	26.7	102.6	155.4	35.5	7.1
	ROW ‡	1.9	0.0	11.9	1.1	0.5	5.3	65.7
	COLUMN ‡	0.1	0.0	0.7	0.2	0.0	0.0	0.5
ROTORCRAFT	ESTIMATE	1,079	223	77	33	1,311	576	165
	‡ STD. ERROR	14.5	30.9	34.2	106.0	12.7	19.6	43.8
	ROW ‡	18.5	3.8	1.3	0.6	22.4	9.8	2.8
	COLUMN ‡	6.7	1.1	0.7	0.9	16.6	0.7	0.2
PISTON	ESTIMATE	1,079	223	77	33	1,311	576	165
	‡ STD. ERROR	14.5	30.9	34.2	106.0	12.7	19.6	43.8
	ROW ‡	18.5	3.8	1.3	0.6	22.4	9.8	2.8
	COLUMN ‡	6.7	1.1	0.7	0.9	16.6	0.7	0.2
TURBINE	ESTIMATE	106	23	205	147	917	1,722	1,202
	‡ STD. ERROR	37.9	74.1	38.0	46.6	15.6	10.3	12.9
	ROW ‡	2.3	0.5	4.4	3.2	19.8	37.2	26.0
	COLUMN ‡	0.7	0.1	1.9	3.8	11.6	2.1	1.5
TOTAL								

8.1 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 3 OF 3

HIERARCHICAL CAPABILITY GROUPS

AIRCRAFT TYPE	1	2	3	4	5	6	7	8	TOTAL
OTHER AIRCRAFT	ESTIMATE % STD. ERROR ROW % COLUMN %	4,044 5.8 37.5 25.2	599 20.7 5.6 2.9	25 40.8 0.2 0.2	3 80.7 0.0 0.1	74 56.2 0.7 0.9	96 30.0 0.9 0.1	14 139.7 0.1 0.0	10,781 0.0 4.1
ALL AIRCRAFT	ESTIMATE % STD. ERROR ROW %	42,745 2.1 16.1	16,064 4.2 6.1	20,712 4.1 7.8	10,887 6.0 4.1	3,837 10.4 1.4	80,149 1.7 30.2	82,727 1.4 31.2	265,041

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.



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HIERARCHICAL CAPABILITY GROUPS KEY

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1 - NO REGULATORY AVIONICS.

2 - TWO-WAY COMMUNICATIONS.

3 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; VOR OR ADF OR RNAV.

4 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY; VOR OR RNAV.

5 - TWO-WAY COMMUNICATIONS, MODE\_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.

6 - TWO-WAY COMMUNICATIONS, MODE\_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT.

7 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR.

8 - TWO-WAY COMMUNICATIONS, TWO SYSTEMS: AIR TAXIS; MODE\_S CAPABILITY, ALTITUDE ENCODING EQUIPMENT, VOR AND DME OR RNAV.

8.2 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AGE OF AIRCRAFT

PAGE 1 OF 2

AGE OF AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS								
	1	2	3	4	5	6	7	8	
0 - 4 YEARS	ESTIMATE	3,116	2,207	1,439	215	1,135	1,983	3,038	
	% STD. ERROR	13.0	15.2	21.5	30.2	23.6	16.9	9.7	
	ROW % COLUMN %	23.5 7.3	16.6 13.7	10.9 6.9	1.6 2.0	0.9 3.3	8.6 14.4	15.0 2.5	22.9 3.7
5 - 9 YEARS	ESTIMATE	2,571	1,348	1,048	306	316	2,083	5,419	
	% STD. ERROR	14.0	19.8	25.3	34.9	31.5	16.4	8.1	
	ROW % COLUMN %	19.0 6.0	10.0 8.4	7.7 5.1	2.3 2.8	2.3 8.2	3.2 5.5	15.4 2.6	40.1 6.6
10 - 14 YEARS	ESTIMATE	4,892	1,977	2,074	1,755	1,047	13,333	27,032	
	% STD. ERROR	8.8	14.5	16.6	16.1	21.8	18.4	5.8	
	ROW % COLUMN %	9.1 11.4	3.7 12.3	3.8 10.0	3.3 16.1	1.9 27.3	3.3 22.3	24.7 16.6	50.2 32.7
15 - 19 YEARS	ESTIMATE	5,424	1,467	1,690	1,889	662	15,089	18,349	
	% STD. ERROR	9.1	16.2	18.0	15.7	26.5	19.9	4.5	
	ROW % COLUMN %	11.9 12.7	3.2 9.1	3.7 8.2	4.1 17.4	1.4 17.3	2.5 14.5	33.0 18.8	40.1 22.2
20 - 24 YEARS	ESTIMATE	2,737	1,118	2,658	1,847	702	12,978	10,789	
	% STD. ERROR	12.3	19.5	14.5	16.4	26.8	25.0	5.8	
	ROW % COLUMN %	8.1 6.4	3.3 7.0	7.9 12.8	5.5 17.0	2.1 18.3	2.4 10.0	38.6 16.2	32.1 13.0
25 - 29 YEARS	ESTIMATE	2,338	1,198	2,435	1,550	284	14,481	9,413	
	% STD. ERROR	13.5	19.6	14.8	18.1	40.0	21.6	6.3	
	ROW % COLUMN %	7.2 5.5	3.7 7.5	7.5 11.8	4.8 14.2	0.9 7.4	2.6 10.9	44.5 18.1	28.9 11.4
30 - 34 YEARS	ESTIMATE	1,917	1,042	2,116	1,571	443	8,298	5,503	
	% STD. ERROR	14.6	20.8	14.4	16.6	33.3	52.4	7.1	
	ROW % COLUMN %	9.1 4.5	4.9 6.5	10.0 10.2	7.4 14.4	2.1 11.5	1.3 2.6	39.3 10.4	26.1 6.7
		TOTAL							
		13,259							
		5.3							
		5.0							
		13,527							
		5.5							
		5.1							
		53,872							
		2.5							
		20.3							
		45,715							
		2.8							
		17.2							
		33,618							
		3.4							
		12.7							
		32,558							
		3.4							
		12.3							
		21,096							
		4.0							
		8.0							

8.2 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY AGE OF AIRCRAFT

PAGE 2 OF 2

AGE OF AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
35+ YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	5,533 7.1 10.8 34.4	7,464 6.1 14.6 36.0	1,863 12.4 3.6 17.1	346 28.2 0.7 9.0	2,094 12.9 4.1 26.5	12,558 4.8 24.5 15.7	2,720 11.3 5.3 3.3
TOTAL	42,745 2.1 16.1	16,064 4.2 6.1	20,712 4.1 7.8	10,887 6.0 4.1	3,837 10.4 1.4	7,900 6.7 3.0	80,149 1.7 30.2	82,727 1.4 31.2
								TOTAL
								51,294 1.5 19.4
								265,041

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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HIERARCHICAL CAPABILITY GROUPS KEY

---

- 1 - NO REGULATORY AVIONICS.
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8.3 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY TOTAL FLIGHT HOUR GROUPS

PAGE 1 OF 2

HIERARCHICAL CAPABILITY GROUPS

TOTAL FLIGHT HOUR GROUPS	1	2	3	4	5	6	7	8	TOTAL
1 - 49 HOURS	ESTIMATE % STD. ERROR ROW % COLUMN %	5,832 7.1 9.4 36.3	7,695 7.3 12.3 37.2	3,439 11.0 5.5 31.6	1,356 17.7 2.2 35.3	2,146 13.6 3.4 27.2	20,988 4.3 33.7 26.2	11,905 5.8 19.1 14.4	62,323 2.2 23.5
50 - 99 HOURS	ESTIMATE % STD. ERROR ROW % COLUMN %	2,560 11.6 4.7 6.0	2,861 10.7 5.3 17.8	4,358 9.8 8.1 21.0	1,941 14.7 3.6 17.8	1,968 14.6 3.6 24.9	22,569 4.2 41.8 28.2	17,082 4.7 31.7 20.6	53,964 2.5 20.4
100 - 149 HOURS	ESTIMATE % STD. ERROR ROW % COLUMN %	880 19.0 2.6 2.1	1,160 17.2 3.4 7.2	1,229 17.9 3.6 5.9	1,044 21.2 3.1 9.6	423 31.8 1.2 11.0	11,417 6.2 33.5 14.2	17,118 4.6 50.2 20.7	34,115 3.3 12.9
150 - 199 HOURS	ESTIMATE % STD. ERROR ROW % COLUMN %	575 24.6 3.8 1.3	450 26.5 3.0 2.8	364 36.3 2.4 1.8	113 51.0 0.8 1.0	234 44.7 1.6 6.1	4,142 10.4 27.6 5.2	8,918 6.6 59.3 10.8	15,034 5.1 5.7
200 - 249 HOURS	ESTIMATE % STD. ERROR ROW % COLUMN %	911 19.0 7.5 2.1	274 34.5 2.3 1.7	243 43.6 2.0 1.2	218 44.1 1.8 2.0	514 28.5 4.2 13.4	3,015 12.7 24.9 3.8	6,680 7.5 55.1 8.1	12,126 5.7 4.6
250 - 299 HOURS	ESTIMATE % STD. ERROR ROW % COLUMN %	600 24.3 8.5 1.4	97 53.9 1.4 0.6	90 58.8 1.3 0.4	137 55.9 1.9 1.3	34 96.3 0.5 0.9	1,550 17.3 21.9 1.9	4,244 9.4 59.9 5.1	7,083 7.4 2.7

**PAGE 2 OF 2**

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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8.4 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 1 OF 2

HIERARCHICAL CAPABILITY GROUPS

PRIMARY USE	1	2	3	4	5	6	7	8	TOTAL
<b>EXECUTIVE</b>									
ESTIMATE	85	71	74	470	111	155	587	9,433	10,986
% STD. ERROR	52.6	61.0	63.9	20.4	46.6	46.6	25.3	4.3	4.1
ROW %	0.8	0.6	0.7	4.3	1.0	1.4	5.3	85.9	
COLUMN %	0.2	0.4	0.4	4.3	2.9	2.0	0.7	11.4	4.1
<b>BUSINESS</b>									
ESTIMATE	504	284	916	1,267	886	224	7,634	22,396	34,111
% STD. ERROR	27.6	37.2	21.1	18.9	20.8	36.9	7.6	3.7	3.0
ROW %	1.5	0.8	2.7	3.7	2.6	0.7	22.4	65.7	
COLUMN %	1.2	1.8	4.4	11.6	23.1	2.8	9.5	27.1	12.9
<b>PERSONAL</b>									
ESTIMATE	10,150	8,240	11,524	4,790	1,918	4,048	49,425	35,104	125,199
% STD. ERROR	5.1	5.6	5.7	9.3	15.3	9.7	2.4	3.1	1.1
ROW %	8.1	6.6	9.2	3.8	1.5	3.2	39.5	28.0	
COLUMN %	23.7	51.3	55.6	44.0	50.0	51.2	61.7	42.4	47.2
<b>INSTRUCTIONAL</b>									
ESTIMATE	743	628	815	590	289	561	11,131	4,905	19,662
% STD. ERROR	17.2	21.7	24.2	31.0	41.7	26.5	6.1	9.7	4.4
ROW %	3.8	3.2	4.1	3.0	1.5	2.9	56.6	24.9	
COLUMN %	1.7	3.9	3.9	5.4	7.5	7.1	13.9	5.9	7.4
<b>AERIAL APPLICATION</b>									
ESTIMATE	4,949	1,170	138	90	10	332	762	391	7,841
% STD. ERROR	4.7	17.1	54.4	52.6	166.8	29.8	20.8	29.2	3.7
ROW %	63.1	14.9	1.8	1.1	0.1	4.2	9.7	5.0	
COLUMN %	11.6	7.3	0.7	0.8	0.3	4.2	1.0	0.5	3.0
<b>AERIAL OBSERVATION</b>									
ESTIMATE	238	508	193	30	104	322	2,289	1,789	5,474
% STD. ERROR	35.6	25.9	43.0	69.3	64.2	31.3	13.7	15.5	8.4
ROW %	4.3	9.3	3.5	0.5	1.9	5.9	41.8	32.7	
COLUMN %	0.6	3.2	0.9	0.3	2.7	4.1	2.9	2.2	2.1



8.4 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
OTHER WORK	ESTIMATE	379	217	22	12	210	592	227
	% STD. ERROR	47.2	29.1	43.8	63.5	33.1	24.8	24.9
	ROW & COLUMN %	8.5 0.4	20.9 2.4	12.0 1.0	1.2 0.2	11.6 2.7	32.7 0.7	12.5 0.3
COMPUTER AIR CARRIER	ESTIMATE	0	62	64	57	23	111	592
	% STD. ERROR	0.0	65.2	62.3	68.9	98.1	35.5	17.3
	ROW & COLUMN %	0.0	6.6 0.4	6.8 0.3	6.0 0.5	2.4 0.3	11.7 0.1	62.6 0.7
AIR TAXI	ESTIMATE	20	390	166	197	819	586	3,576
	% STD. ERROR	88.2	29.5	48.5	45.3	21.3	21.4	8.9
	ROW & COLUMN %	0.3 0.0	6.7 2.4	2.9 0.8	3.4 1.8	14.1 10.4	10.1 0.7	61.7 4.3
OTHER USE	ESTIMATE	473	309	430	222	368	909	1,569
	% STD. ERROR	25.0	32.1	29.6	39.5	33.1	19.2	13.4
	ROW & COLUMN %	10.8 1.1	7.1 1.9	9.8 2.1	5.1 2.0	8.4 4.7	20.8 1.1	35.9 1.9
INACTIVE	ESTIMATE	25,465	4,028	6,172	3,172	851	6,068	2,773
	% STD. ERROR	3.2	9.7	7.9	11.4	21.2	8.2	10.8
	ROW & COLUMN %	52.1 59.6	8.2 25.1	12.6 29.8	6.5 29.1	1.7 10.8	12.4 7.6	5.7 3.4
TOTAL	ESTIMATE	42,745	16,064	20,712	10,887	7,900	80,149	82,727
	% STD. ERROR	2.1	4.2	4.1	6.0	6.7	1.7	1.4
	ROW & COLUMN %	16.1	6.1	7.8	4.1	3.0	30.2	31.2

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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8.5 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION OF BASED AIRCRAFT	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
ALASKAN	ESTIMATE	1,888	2,463	931	147	321	1,535	995
	% STD. ERROR	18.4	13.7	12.3	20.3	33.0	14.9	19.1
	ROW & COLUMN &	10.8 2.3	20.3 11.8	26.5 11.9	10.0 8.6	3.5 4.1	16.5 1.9	10.7 1.2
CENTRAL	ESTIMATE	3,557	943	1,194	950	394	3,878	4,424
	% STD. ERROR	9.8	20.6	19.1	21.8	35.3	11.0	9.4
	ROW & COLUMN &	23.0 8.3	6.1 5.9	7.7 5.8	6.2 8.7	2.6 5.0	25.1 4.8	28.6 5.3
EASTERN	ESTIMATE	5,360	1,374	1,675	1,068	439	10,198	9,123
	% STD. ERROR	7.7	15.6	15.6	19.3	29.8	6.6	6.5
	ROW & COLUMN &	18.0 12.5	4.6 8.6	5.6 8.1	3.6 9.8	1.5 5.6	34.2 12.7	30.6 11.0
GREAT LAKES	ESTIMATE	8,159	3,174	4,929	1,821	1,384	13,009	14,248
	% STD. ERROR	6.2	10.8	9.1	15.0	17.1	5.8	5.1
	ROW & COLUMN &	17.3 19.1	6.7 19.8	10.5 23.8	3.9 16.7	2.9 17.5	27.6 16.2	30.2 17.2
NEW ENGLAND	ESTIMATE	1,253	499	868	451	300	3,723	3,121
	% STD. ERROR	15.3	23.0	22.7	33.0	38.8	11.0	11.8
	ROW & COLUMN &	12.0 2.9	4.8 3.1	8.3 4.2	4.3 4.1	2.9 3.8	35.8 4.6	29.8 3.8
TOTAL								9,280 5.8 3.5 15,443 5.1 5.8 29,846 3.5 11.3 47,132 2.7 17.8 10,462 6.3 3.9

8.5 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION OF BASED AIRCRAFT		HIERARCHICAL CAPABILITY GROUPS							
		1	2	3	4	5	6	7	8
NORTHWEST MOUNTAIN	ESTIMATE	4,819	2,077	2,234	1,270	380	1,014	7,783	7,445
	% STD. ERROR	8.4	13.1	13.8	18.5	34.1	19.4	7.4	7.3
	ROW & COLUMN &	17.8 11.3	7.7 12.9	8.3 10.8	4.7 11.7	1.4 9.9	3.8 12.8	28.8 9.7	27.6 9.0
SOUTHERN	ESTIMATE	5,665	1,975	2,524	1,550	517	1,555	13,974	14,904
	% STD. ERROR	7.8	12.9	12.8	16.5	27.5	15.9	5.6	4.9
	ROW & COLUMN &	13.3 13.3	4.6 12.3	5.9 12.2	3.6 14.2	1.2 13.5	3.6 19.7	32.8 17.4	34.9 18.0
SOUTHWESTERN	ESTIMATE	6,764	1,431	2,059	1,234	723	986	10,264	11,452
	% STD. ERROR	6.8	14.6	14.9	19.3	24.3	20.8	6.5	5.7
	ROW & COLUMN &	19.4 15.8	4.1 8.9	5.9 9.9	3.5 11.3	2.1 18.8	2.8 12.5	29.4 12.8	32.8 13.8
WESTERN-PACIFIC	ESTIMATE	6,168	2,703	2,765	1,611	704	1,506	15,786	17,015
	% STD. ERROR	6.9	10.4	12.0	15.3	22.3	15.0	5.1	4.6
	ROW & COLUMN &	12.8 14.4	5.6 16.8	5.7 13.3	3.3 14.8	1.5 18.3	3.1 19.1	32.7 19.7	35.3 20.6
TOTAL	ESTIMATE	42,745	16,064	20,712	10,887	3,837	7,900	80,149	82,727
	% STD. ERROR	2.1	4.2	4.1	6.0	10.4	6.7	1.7	1.4
	ROW &	16.1	6.1	7.8	4.1	1.4	3.0	30.2	31.2
TOTAL									265,041

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8.6 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY NONHIERARCHICAL CAPABILITY GROUPS

PAGE 1 OF 2

NONHIERARCHICAL	HIERARCHICAL CAPABILITY GROUPS								
	1	2	3	4	5	6	7	8	TOTAL
LOCALIZER	138 59.4 1.0 0.3	92 62.6 0.6 0.6	1,137 19.5 8.0 5.5	990 21.3 6.9 9.1	252 46.7 1.8 6.6	12 153.2 0.1 0.2	10,645 6.3 74.5 13.3	1,016 19.6 7.1 1.2	14,282 5.4 5.4
LOCALIZER, MARKER BEACON	61 88.2 0.8 0.1	0 0.0 0.0 0.0	123 45.6 1.6 0.6	791 23.6 10.4 7.3	65 74.3 0.9 1.7	71 88.5 0.9 0.9	4,232 10.3 55.7 5.3	2,256 13.4 29.7 2.7	7,599 7.5 2.9
LOCALIZER, MARKER BEACON, GLIDE SLOPE	47 101.1 0.0 0.1	13 177.5 0.0 0.1	710 22.0 0.7 3.4	2,969 11.7 3.0 27.3	1,655 15.9 1.7 43.1	365 30.9 0.4 4.6	32,044 3.4 32.8 40.0	59,819 2.0 61.3 72.3	97,622 1.3 36.8
LOCALIZER, MARKER BEACON, GLIDE SLOPE, RADAR ALTIMETER	27 127.5 0.1 0.1	0 0.0 0.0 0.0	37 60.3 0.2 0.2	569 19.9 3.1 5.2	504 23.8 2.8 13.1	141 46.6 0.8 1.8	636 24.3 3.5 0.8	16,218 3.2 89.4 19.6	18,132 3.0 6.8
LONG RANGE NAV (INCLUDES OMEGA, LORAN-C)	492 30.2 0.5 1.2	1,591 15.2 1.5 9.9	2,710 11.9 2.6 13.1	3,308 10.8 3.2 30.4	1,806 14.8 1.7 47.1	4,395 9.4 4.2 55.6	40,225 2.9 38.7 50.2	49,433 2.2 47.6 59.8	103,960 1.4 39.2
RADAR ALTIMETER	74 73.4 0.4 0.2	71 62.0 0.4 0.4	73 63.0 0.4 0.4	658 18.7 3.4 6.0	535 23.4 2.7 13.9	203 40.3 1.0 2.6	1,123 17.5 5.8 1.4	16,768 3.2 86.0 20.3	19,506 2.9 7.4

9.6 1991 GENERAL AVIATION AIRCRAFT HIERARCHICAL CAPABILITY GROUPS  
BY NONHIERARCHICAL CAPABILITY GROUPS

PAGE 2 OF 2

NONHIERARCHICAL	HIERARCHICAL CAPABILITY GROUPS							
	1	2	3	4	5	6	7	8
MICROWAVE LANDING SYSTEM	ESTIMATE % STD. ERROR ROW % COLUMN %	3 163.2 0.4 0.0	60 66.5 9.0 0.3	9 169.9 1.3 0.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	52 88.8 7.8 0.1	513 23.5 76.9 0.6
	TOTAL	667	20.6	0.3				
LOCALIZER, MARKER BEACON, GLIDE SLOPE, MICROWAVE LANDING SYSTEM	ESTIMATE % STD. ERROR ROW % COLUMN %	0 0.0 0.0 0.0	3 303.2 0.6 0.0	8 179.6 1.7 0.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	46 98.4 9.8 0.1	414 26.6 87.9 0.5
	TOTAL	471	25.6	0.2				
LONG RANGE NAV., MICROWAVE LANDING SYSTEM	ESTIMATE % STD. ERROR ROW % COLUMN %	0 0.0 0.0 0.0	0 0.0 0.0 0.0	6 196.2 2.0 0.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	46 98.4 15.6 0.1	241 37.0 82.0 0.3
	TOTAL	294	34.2	0.1				
NO REGULATORY AVIONICS	ESTIMATE % STD. ERROR ROW % COLUMN %	42,002 2.1 41.2 98.3	14,345 4.5 14.1 89.3	16,662 4.7 16.3 80.4	4,140 10.1 4.1 38.0	818 23.4 0.3 21.3	3,177 10.6 3.1 40.2	19,278 4.5 18.9 24.1
	TOTAL	101,967	1.2					
ALL AIRCRAFT	ESTIMATE % STD. ERROR ROW % COLUMN %	42,745 2.1 16.1	16,064 4.2 6.1	20,712 4.1 7.8	10,887 6.0 4.1	3,837 10.4 1.4	7,900 6.7 3.0	82,727 1.4 31.2
	TOTAL	265,041						

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8-25

# NONHIERARCHICAL CAPABILITY GROUPS KEY

- 1 - LOCALIZER (LOC)
  - 2 - LOCALIZER, MARKER BEACON (MB)
  - 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
  - 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN, VFR ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
  - 5 - RADAR ALTIMETER (RA)
  - 6 - MICROWAVE LANDING SYSTEM (MLS)
  - 7 - LOC, MB, GS, MLS
  - 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS



8.7 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 1 OF 3

NONHIERARCHICAL CAPABILITY GROUPS

AIRCRAFT TYPE	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
<b>FIXED WING - PISTON</b>										
SINGLE ENGINE 1-3 SEATS	7,439	1,361	6,337	17,218	57	16	0	0	62,737	88,322
	ESTIMATE	18.0	7.9	4.4	82.1	112.0	0.0	0.0	1.4	0.0
	% STD. ERROR ROW % COLUMN %	8.4 1.5 52.1	7.2 6.5	19.5 16.6	0.1 0.3	0.0 2.4	0.0 0.0	0.0 0.0	71.0 61.5	33.3
SINGLE ENGINE 4+ SEATS	5,778	5,460	71,941	59,841	3,398	311	228	138	20,416	118,049
	ESTIMATE	8.9	1.4	1.9	11.0	36.1	44.2	58.8	3.8	0.0
	% STD. ERROR ROW % COLUMN %	4.9 4.6 40.5	60.9 73.7	50.7 57.6	2.9 17.4	0.3 46.6	0.2 48.4	0.1 46.9	17.3 20.0	44.5
TWO ENGINES 1-6 SEATS	205	441	12,386	9,984	3,079	64	64	19	1,157	17,359
	ESTIMATE	27.3	3.0	4.1	10.0	48.3	48.3	92.4	17.4	0.0
	% STD. ERROR ROW % COLUMN %	1.2 1.4	71.4 12.7	57.5 9.6	17.7 15.8	0.4 9.6	0.4 13.6	0.1 6.5	6.7 1.1	6.5
TWO ENGINES 7+ SEATS	167	146	4,759	4,582	2,528	65	45	25	825	8,464
	ESTIMATE	41.3	5.3	5.8	8.9	60.6	85.0	135.8	14.5	0.0
	% STD. ERROR ROW % COLUMN %	2.0 1.2	56.2 4.9	54.1 4.4	29.9 13.0	0.8 9.7	0.5 9.6	0.3 8.5	9.7 0.8	3.2
PISTON OTHER	60	2	91	69	10	0	0	0	107	272
	ESTIMATE	149.0	27.6	18.2	172.6	0.0	0.0	0.0	33.2	0.0
	% STD. ERROR ROW % COLUMN %	22.1 0.4	33.5 0.1	25.4 0.1	3.7 0.1	0.0 0.0	0.0 0.0	0.0 0.0	39.3 0.1	0.1
<b>FIXED WING - TURBOPROP</b>										
2 ENGINES 1-12 SEATS	0	57	497	3,285	3,815	115	47	76	166	4,482
	ESTIMATE	63.1	20.2	4.2	2.8	40.1	61.4	49.6	28.8	0.0
	% STD. ERROR ROW % COLUMN %	0.0 0.0	11.1 0.5	73.3 3.2	85.1 19.6	2.6 17.2	1.0 10.0	1.7 25.9	3.7 0.2	1.7

8.7 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 2 OF 3

NONHIERARCHICAL CAPABILITY GROUPS

AIRCRAFT TYPE	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
2 ENGINES 13+ SEATS	0 0.0 0.0 0.0	4 194.5 0.3 0.1	440 14.1 35.1 0.5	463 14.7 37.0 0.4	792 7.7 63.2 4.1	16 75.5 1.3 2.4	16 75.5 1.3 3.4	0 0.0 0.0 0.0	19 73.1 1.5 0.0	1,253 0.0 0.0 0.5
TURBOPROP OTHER	1 636.7 0.2 0.0	6 214.5 1.1 0.1	247 18.4 45.4 0.3	274 15.4 50.4 0.3	59 62.2 10.8 0.3	3 324.6 0.6 0.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	165 18.3 30.3 0.2	544 0.0 0.0 0.2
FIXED WING - TURBOJET										
2 ENGINES	0 0.0 0.0 0.0	99 42.7 2.3 1.3	188 23.6 4.3 0.2	3,615 2.9 82.5 3.5	4,101 1.5 93.6 21.0	44 61.3 1.0 6.6	44 61.3 1.0 9.3	34 72.4 0.8 11.6	83 53.7 1.9 0.1	4,383 0.0 0.0 1.7
TURBOJET OTHER	31 43.4 4.9 0.2	6 108.2 0.9 0.1	63 30.6 9.9 0.1	371 7.0 58.2 0.4	430 6.3 67.4 2.2	23 44.5 3.6 3.4	23 44.5 3.6 4.9	0 0.0 0.0 0.0	114 20.2 17.9 0.1	638 0.0 0.0 0.2
ROTORCRAFT										
PISTON	107 54.5 1.8 0.7	0 0.0 0.0 0.0	186 39.4 3.2 0.2	868 15.9 14.8 0.8	3 250.2 0.1 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	4,730 2.9 80.9 4.6	5,848 0.0 0.0 2.2
TURBINE	474 22.4 10.2 3.3	16 91.5 0.3 0.2	455 26.5 9.8 0.5	3,301 4.6 71.4 3.2	1,156 10.6 25.0 5.9	4 289.6 0.1 0.6	4 289.6 0.1 0.8	2 412.1 0.0 0.7	850 14.4 18.4 0.8	4,626 0.0 0.0 1.7

8.7 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AIRCRAFT TYPE

PAGE 3 OF 3

AIRCRAFT TYPE	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
OTHER AIRCRAFT	ESTIMATE	19	2	32	78	5	0	0	10,598	10,781
	% STD. ERROR	44.6	106.4	86.5	57.8	182.0	0.0	0.0	0.5	0.0
	ROW %	0.2	0.0	0.3	0.7	0.0	0.0	0.0	98.3	0.0
ALL AIRCRAFT	COLUMN %	0.1	0.0	0.0	0.4	0.7	0.0	0.0	10.4	4.1
	ESTIMATE	14,282	7,599	97,622	103,960	19,506	471	294	101,967	265,041
	% STD. ERROR	5.4	7.5	1.3	1.4	20.6	25.6	34.2	1.2	
	ROW %	5.4	2.9	36.8	39.2	7.4	0.2	0.1	38.5	

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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- NO GROUP - NO REGULATORY AVIONICS

8.8 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AGE OF AIRCRAFT

PAGE 1 OF 2

NONHIERARCHICAL CAPABILITY GROUPS

AGE OF AIRCRAFT	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
0 - 4 YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	587 32.6 4.4 4.1	46 77.3 0.3 0.6	2,109 14.7 15.9 2.2	4,692 9.8 35.4 4.5	2,129 9.8 16.1 10.9	46 69.4 0.3 6.9	39 70.8 0.3 8.3	32 81.9 0.2 10.9	7,064 13,259 8.0 5.3 53.3 6.9 5.0
5 - 9 YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	487 34.6 3.6 3.4	160 64.3 1.2 2.1	4,094 10.2 30.3 4.2	5,478 8.4 40.5 5.3	2,589 9.2 19.1 13.3	49 103.1 0.4 7.3	49 103.1 0.4 10.4	49 103.1 0.4 16.7	5,403 13,527 9.7 5.5 39.9 5.3 5.1
10 - 14 YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	3,153 12.3 5.9 22.1	918 22.9 1.7 12.1	26,649 3.7 49.5 27.3	24,220 3.9 45.0 23.3	6,907 6.1 12.8 35.4	66 57.2 0.1 9.9	61 60.3 0.1 13.0	2 451.2 0.0 0.7	13,145 53,872 5.7 2.5 24.4 12.9 20.3
15 - 19 YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	1,510 18.3 3.3 10.6	1,273 18.9 2.8 16.8	22,674 4.2 49.6 23.2	21,028 4.3 46.0 20.2	4,125 8.9 9.0 21.1	161 40.4 0.4 24.1	82 62.5 0.2 17.4	151 42.4 0.3 51.4	12,710 45,715 5.9 2.8 27.8 12.5 17.2
20 - 24 YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	2,314 15.3 6.9 16.2	1,609 17.5 4.8 21.2	14,783 5.3 44.0 15.1	15,020 5.3 44.7 14.4	1,482 13.1 4.4 7.6	147 49.4 0.4 22.0	119 55.2 0.4 25.3	43 112.1 0.1 14.6	9,910 33,618 6.8 3.4 29.5 9.7 12.7
25 - 29 YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	2,021 15.9 6.2 14.2	1,542 17.8 4.7 20.3	14,118 5.3 43.4 14.5	14,224 5.5 43.7 13.7	1,374 16.0 4.2 7.0	45 100.8 0.1 6.7	45 100.8 0.1 9.6	3 154.6 0.0 1.0	9,890 32,558 6.8 3.4 30.4 9.7 12.3
30 - 34 YEARS	ESTIMATE % STD. ERROR ROW % COLUMN %	1,460 18.0 6.9 10.2	1,091 20.5 5.2 14.4	7,811 6.9 37.0 8.0	9,031 6.7 42.8 8.7	528 24.4 2.5 2.7	33 50.8 0.2 4.9	33 50.8 0.2 7.0	0 0.0 0.0 0.0	7,277 21,096 7.4 4.0 34.5 7.1 8.0

8.8 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY AGE OF AIRCRAFT

PAGE 2 OF 2

AGE OF AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
	1	2	3	4	5	6	7	8		
35+ YEARS	ESTIMATE	782	5,954	10,338	94	85	14	2	36,233	51,294
	% STD. ERROR	19.8	7.3	5.2	52.1	54.6	77.6	87.5	2.0	1.5
	ROW %	1.5	11.6	20.2	0.2	0.2	0.0	0.0	70.6	
	COLUMN %	10.3	6.1	9.9	0.5	12.7	3.0	0.7	35.5	19.4
TOTAL	ESTIMATE	7,599	97,622	103,960	19,506	667	471	294	101,967	265,041
	% STD. ERROR	7.5	1.3	1.4	2.9	20.6	25.6	34.2	1.2	
	ROW %	2.9	36.8	39.2	7.4	0.3	0.2	0.1	38.5	
	COLUMN %									

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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8.9 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY TOTAL FLIGHT HOUR GROUPS

PAGE 1 OF 2

TOTAL FLIGHT HOUR GROUPS		NONHIERARCHICAL CAPABILITY GROUPS									
		1	2	3	4	5	6	7	8	NO GROUP	TOTAL
1 - 49 HOURS	ESTIMATE	3,706	1,850	16,870	19,973	1,638	44	3	0	30,161	62,323
	% STD. ERROR	10.5	15.7	4.9	4.4	13.7	81.2	303.2	0.0	3.2	2.2
	ROW % COLUMN %	5.9 25.9	3.0 24.3	27.1 17.3	32.0 19.2	2.6 8.4	0.1 6.6	0.0 0.6	0.0 0.0	48.4 29.6	23.5
50 - 99 HOURS	ESTIMATE	2,979	2,209	24,470	26,870	2,247	115	114	44	14,605	53,964
	% STD. ERROR	12.2	14.3	3.9	3.7	12.2	55.2	55.5	105.8	5.1	2.5
	ROW % COLUMN %	5.5 20.9	4.1 29.1	45.3 25.1	49.8 25.8	4.2 11.5	0.2 17.2	0.2 24.2	0.1 15.0	27.1 14.3	20.4
100 - 149 HOURS	ESTIMATE	1,835	942	19,445	18,927	3,092	20	20	17	5,825	34,115
	% STD. ERROR	15.8	20.3	4.4	4.5	10.2	91.1	91.1	95.6	8.5	3.3
	ROW % COLUMN %	5.4 12.8	2.8 12.4	57.0 19.9	55.5 18.2	9.1 15.9	0.1 3.0	0.1 4.2	0.0 5.8	17.1 5.7	12.9
150 - 199 HOURS	ESTIMATE	886	571	9,080	9,135	1,886	11	11	2	1,669	15,034
	% STD. ERROR	22.9	28.0	6.9	6.6	12.2	84.4	84.4	250.9	15.1	5.1
	ROW % COLUMN %	5.9 6.2	3.8 7.5	60.4 9.3	60.8 8.8	12.5 9.7	0.1 1.6	0.1 2.3	0.0 0.7	11.1 1.6	5.7
200 - 249 HOURS	ESTIMATE	558	427	6,359	7,087	2,324	99	31	75	1,792	12,126
	% STD. ERROR	30.7	31.9	8.2	7.4	11.6	40.8	59.3	50.0	14.5	5.7
	ROW % COLUMN %	4.6 3.9	3.5 5.6	52.4 6.5	58.4 6.8	19.2 11.9	0.8 14.8	0.3 6.6	0.6 25.5	14.8 1.8	4.6
250 - 299 HOURS	ESTIMATE	311	261	3,721	3,702	1,235	21	21	21	1,183	7,083
	% STD. ERROR	37.5	41.8	10.9	9.9	13.8	93.6	93.6	93.6	17.7	7.4
	ROW % COLUMN %	4.4 2.2	3.7 3.4	52.5 3.8	52.3 3.6	17.4 6.3	0.3 3.1	0.3 4.5	0.3 7.1	16.7 1.2	2.7



8.9 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY TOTAL FLIGHT HOUR GROUPS

PAGE 2 OF 2

TOTAL FLIGHT HOUR GROUPS		NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
		1	2	3	4	5	6	7	8		
300 - 349 HOURS	ESTIMATE	364	57	2,821	3,269	1,371	27	27	27	1,347	6,269
	% STD. ERROR	37.7	78.8	12.5	10.1	12.5	126.3	126.3	126.3	17.0	7.8
	ROW %	5.8	0.9	45.0	52.1	21.9	0.4	0.4	0.4	21.5	2.4
350 - 399 HOURS	ESTIMATE	475	43	1,388	2,123	959	48	48	10	1,230	4,126
	% STD. ERROR	31.3	108.1	18.3	13.1	16.3	90.8	90.8	104.1	18.3	9.8
	ROW %	11.5	1.0	33.6	51.5	23.2	1.2	1.2	0.2	29.8	1.6
400 - 449 HOURS	ESTIMATE	155	2	2,231	1,867	866	2	2	2	1,185	4,522
	% STD. ERROR	57.1	200.0	14.4	13.0	14.3	179.3	179.3	179.3	18.2	9.2
	ROW %	3.4	0.0	49.3	41.3	19.2	0.0	0.0	0.0	26.2	1.7
450+ HOURS	ESTIMATE	1,381	273	6,153	5,676	3,133	134	134	52	4,685	16,592
	% STD. ERROR	19.4	44.0	8.5	7.4	7.6	48.0	48.0	97.9	9.3	4.6
	ROW %	8.3	1.6	37.1	34.2	18.9	0.8	0.8	0.3	28.2	6.3
INACTIVE	ESTIMATE	1,653	975	5,073	5,395	759	100	17	0	38,224	48,867
	% STD. ERROR	16.3	19.8	8.5	8.4	19.4	44.4	64.5	0.0	2.6	2.3
	ROW %	3.4	2.0	10.4	11.0	1.6	0.2	0.0	0.0	78.2	18.4
TOTAL	ESTIMATE	14,282	7,599	97,622	103,960	19,506	667	471	294	101,967	265,041
	% STD. ERROR	5.4	7.5	1.3	1.4	2.9	20.6	25.6	34.2	1.2	1.2
	ROW %	5.4	2.9	36.8	39.2	7.4	0.3	0.2	0.1	38.5	0.1

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8.10 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 1 OF 2

PRIMARY USE	NONHIERARCHICAL CAPABILITY GROUPS										NO GROUP	TOTAL
	1	2	3	4	5	6	7	8				
EXECUTIVE	ESTIMATE	121	358	3,027	8,001	7,164	126	126	69	149	10,986	
	% STD. ERROR	51.0	31.4	10.8	4.7	3.9	42.8	42.8	63.3	41.3	4.1	
	ROW % COLUMN %	1.1 0.8	3.3 4.7	27.6 3.1	72.8 7.7	65.2 36.7	1.1 18.9	1.1 26.8	0.6 23.5	1.4 0.1	4.1	
BUSINESS	ESTIMATE	1,062	1,143	22,274	20,267	4,762	195	126	85	3,121	34,111	
	% STD. ERROR	20.0	19.6	3.9	4.1	8.2	37.2	49.7	47.3	11.8	3.0	
	ROW % COLUMN %	3.1 7.4	3.4 15.0	65.3 22.8	59.4 19.5	14.0 24.4	0.6 29.2	0.4 26.8	0.2 28.9	9.1 3.1	12.9	
PERSONAL	ESTIMATE	7,596	3,969	51,565	56,064	3,207	86	51	48	42,092	125,199	
	% STD. ERROR	7.5	10.4	2.3	2.3	11.1	68.2	94.8	98.9	2.3	1.1	
	ROW % COLUMN %	6.1 53.2	3.2 52.2	41.2 52.8	44.8 53.9	2.6 16.4	0.1 12.9	0.0 10.8	0.0 16.3	33.6 41.3	47.2	
INSTRUCTIONAL	ESTIMATE	2,351	812	8,196	4,176	246	73	72	48	7,100	19,662	
	% STD. ERROR	14.8	25.5	7.6	10.7	29.5	73.6	74.6	101.5	7.6	4.4	
	ROW % COLUMN %	12.0 16.5	4.1 10.7	41.7 8.4	21.2 4.0	1.3 1.3	0.4 10.9	0.4 15.3	0.2 16.3	36.1 7.0	7.4	
AERIAL APPLICATION	ESTIMATE	299	89	435	1,097	47	0	0	0	6,560	7,841	
	% STD. ERROR	35.8	65.9	26.3	15.8	40.3	0.0	0.0	0.0	3.5	3.7	
	ROW % COLUMN %	3.8 2.1	1.1 1.2	5.5 0.4	14.0 1.1	0.6 0.2	0.0 0.0	0.0 0.0	0.0 0.0	83.7 6.4	3.0	
AERIAL OBSERVATION	ESTIMATE	611	100	2,345	3,218	282	2	0	0	1,221	5,474	
	% STD. ERROR	28.7	58.5	13.9	11.1	29.4	165.2	0.0	0.0	16.4	8.4	
	ROW % COLUMN %	11.2 4.3	1.8 1.3	42.8 2.4	58.8 3.1	5.2 1.4	0.0 0.3	0.0 0.0	0.0 0.0	22.3 1.2	2.1	

8.10 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY PRIMARY USE

PAGE 2 OF 2

PRIMARY USE	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL	
	1	2	3	4	5	6	7	8			
OTHER WORK	ESTIMATE	71	68	330	540	149	0	0	0	1,058	1,811
	% STD. ERROR	59.8	89.8	29.4	20.2	28.4	0.0	0.0	0.0	18.4	13.0
	ROW % COLUMN %	3.9 0.5	3.8 0.9	18.2 0.3	29.8 0.5	8.2 0.8	0.0 0.0	0.0 0.0	0.0 0.0	58.4 1.0	0.7
COMPUTER AIR CARRIER	ESTIMATE	81	2	441	266	356	5	5	0	72	946
	% STD. ERROR	56.2	190.4	20.7	29.3	20.7	50.1	50.1	0.0	57.3	13.5
	ROW % COLUMN %	8.6 0.6	0.2 0.0	46.6 0.5	28.1 0.3	37.6 1.8	0.5 0.7	0.5 1.1	0.0 0.0	7.6 0.1	0.4
AIR TAXI	ESTIMATE	180	10	2,951	3,251	1,639	5	5	0	606	5,800
	% STD. ERROR	35.5	112.9	10.6	9.4	12.1	169.5	169.5	0.0	23.3	6.9
	ROW % COLUMN %	3.1 1.3	0.2 0.1	50.9 3.0	56.1 3.1	28.3 8.4	0.1 0.7	0.1 1.1	0.0 0.0	10.4 0.6	2.2
OTHER USE	ESTIMATE	281	84	979	1,767	900	30	26	0	1,729	4,371
	% STD. ERROR	36.4	63.0	16.6	12.4	16.0	60.9	59.4	0.0	14.6	8.3
	ROW % COLUMN %	6.4 2.0	1.9 1.1	22.4 1.0	40.4 1.7	20.6 4.6	0.7 4.5	0.6 5.5	0.0 0.0	39.6 1.7	1.6
INACTIVE	ESTIMATE	1,653	975	5,073	5,395	759	100	17	0	38,224	48,867
	% STD. ERROR	16.3	19.8	8.5	8.4	19.4	44.4	64.5	0.0	2.6	2.3
	ROW % COLUMN %	3.4 11.6	2.0 12.8	10.4 5.2	11.0 5.2	1.6 3.9	0.2 15.0	0.0 3.6	0.0 0.0	78.2 37.5	18.4
TOTAL	ESTIMATE	14,282	7,599	97,622	103,960	19,506	667	471	294	101,967	265,041
	% STD. ERROR	5.4	7.5	1.3	1.4	2.9	20.6	25.6	34.2	1.2	
	ROW % COLUMN %	5.4	2.9	36.8	39.2	7.4	0.3	0.2	0.1	38.5	

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- 2 - LOCALIZER, MARKER BEACON (MB)
- 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
- 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN, VFR ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
- 5 - RADAR ALTIMETER (RA)
- 6 - MICROWAVE LANDING SYSTEM (MLS)
- 7 - LOC, MB, GS, MLS
- 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS

8.11 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 1 OF 2

REGION OF BASED AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS								NO GROUP	TOTAL
	1	2	3	4	5	6	7	8		
ALASKAN	ESTIMATE	110	1,656	3,849	235	2	2	2	4,535	9,280
	% STD. ERROR	62.2	14.7	9.1	34.9	87.5	87.5	87.5	8.7	5.8
	ROW %	8.4	1.2	17.8	41.5	0.0	0.0	0.0	48.9	3.5
CENTRAL	COLUMN %	5.5	1.4	1.7	3.7	0.3	0.4	0.7	4.4	
	ESTIMATE	542	724	4,879	5,712	1,152	50	50	6,846	15,443
	% STD. ERROR	29.2	25.5	9.5	8.5	16.3	95.0	95.0	7.5	5.1
EASTERN	ROW %	3.5	4.7	31.6	37.0	0.3	0.3	0.3	44.3	
	COLUMN %	3.8	9.5	5.0	5.5	7.5	10.6	17.0	6.7	5.8
GREAT LAKES	ESTIMATE	1,746	790	11,434	12,183	2,653	126	63	10,607	29,846
	% STD. ERROR	16.8	23.5	6.1	5.7	9.6	47.1	80.9	5.7	3.5
	ROW %	5.9	2.6	38.3	40.8	8.9	0.4	0.2	35.5	
NEW ENGLAND	COLUMN %	12.2	10.4	11.7	11.7	13.6	26.8	21.4	10.4	11.3
	ESTIMATE	1,714	1,346	16,574	18,035	3,510	164	60	19,882	47,132
	% STD. ERROR	16.3	18.0	5.0	4.6	8.8	48.7	83.6	4.2	2.7
NEW ENGLAND	ROW %	3.6	2.9	35.2	38.3	7.4	0.3	0.1	42.2	
	COLUMN %	12.0	17.7	17.0	17.3	18.0	34.8	20.4	19.5	17.8
NEW ENGLAND	ESTIMATE	629	739	3,895	5,057	635	10	3	3,042	10,462
	% STD. ERROR	26.6	25.3	10.7	9.3	24.2	111.1	203.4	10.8	6.3
	ROW %	6.0	7.1	37.2	48.3	6.1	0.1	0.0	29.1	
NEW ENGLAND	COLUMN %	4.2	9.7	4.0	4.9	3.3	2.1	1.0	3.0	3.9

8.11 1991 GENERAL AVIATION AIRCRAFT NONHIERARCHICAL CAPABILITY GROUPS  
BY REGION OF BASED AIRCRAFT

PAGE 2 OF 2

REGION OF BASED AIRCRAFT	NONHIERARCHICAL CAPABILITY GROUPS									
	1	2	3	4	5	6	7	8	NO GROUP	TOTAL
NORTHWEST MOUNTAIN	ESTIMATE	1,558	645	9,112	9,256	1,553	4	0	0	27,021
	% STD. ERROR	17.0	25.6	6.8	6.5	13.1	215.2	0.0	0.0	3.7
	ROW %	5.8	2.4	33.7	34.3	5.7	0.0	0.0	0.0	3.6
SOUTHERN	COLUMN %	10.9	8.5	9.3	8.9	8.0	0.6	0.0	0.0	10.2
	ESTIMATE	2,421	940	18,409	20,867	3,270	112	57	42	42,665
	% STD. ERROR	13.7	21.2	4.7	4.3	8.7	48.8	67.1	88.1	2.9
SOUTHWESTERN	ROW %	5.7	2.2	43.1	48.9	7.7	0.3	0.1	0.1	31.8
	COLUMN %	17.0	12.4	18.9	20.1	16.8	16.8	12.1	14.3	16.1
SOUTHWESTERN	ESTIMATE	2,486	670	12,394	12,123	3,062	48	45	0	34,914
	% STD. ERROR	13.7	25.0	5.7	5.6	9.2	56.9	56.7	0.0	3.2
	ROW %	7.1	1.9	35.5	34.7	8.8	0.1	0.1	0.0	38.9
WESTERN-PACIFIC	COLUMN %	17.4	8.8	12.7	11.7	15.7	7.2	9.6	0.0	13.2
	ESTIMATE	2,406	1,634	19,269	16,879	3,438	118	18	74	48,258
	% STD. ERROR	13.4	16.0	4.4	4.7	9.3	36.7	77.2	50.2	2.6
TOTAL	ROW %	5.0	3.4	39.9	35.0	7.1	0.2	0.0	0.2	37.7
	COLUMN %	16.8	21.5	19.7	16.2	17.6	17.7	3.8	25.2	17.9
	ESTIMATE	14,282	7,599	97,622	103,960	19,506	667	471	294	265,041
TOTAL	% STD. ERROR	5.4	7.5	1.3	1.4	2.9	20.6	25.6	34.2	1.2
	ROW %	5.4	2.9	36.8	39.2	7.4	0.3	0.2	0.1	38.5

NOTE: ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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NONHIERARCHICAL CAPABILITY GROUPS KEY

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- 1 - LOCALIZER (LOC)
  - 2 - LOCALIZER, MARKER BEACON (MB)
  - 3 - LOCALIZER, MARKER BEACON, GLIDE SLOPE (GS)
  - 4 - LONG RANGE NAVIGATION (LRNAV) - INCLUDES (LORAN, VFR ONLY; ENROUTE IFR; TERMINAL IFR & OMEGA)
  - 5 - RADAR ALTIMETER (RA)
  - 6 - MICROWAVE LANDING SYSTEM (MLS)
  - 7 - LOC, MB, GS, MLS
  - 8 - LRNAV, MLS
- NO GROUP - NO REGULATORY AVIONICS



## APPENDIX A

### METHODOLOGY FOR THE 1991 GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY

#### 1. OVERVIEW

The methods used for the 1991 GAAA Survey are almost identical to those used in previous surveys, except that data obtained in the 1990 telephone survey (see section 5.2, Adjustment of the 1991 GAAA Survey Data, on page A-12), have been used to make necessary adjustments to active aircraft and hours flown estimates.

##### 1.1 Purpose of Survey

The purpose of the General Aviation Activity and Avionics (GAAA) Survey is to provide the Federal Aviation Administration (FAA) with information on the activity and avionics of the general aviation fleet. The information obtained from the survey enables the FAA to monitor the general aviation fleet so that it can, among other activities, anticipate and meet demand for National Airspace System (NAS) facilities and services, assess the impact of regulatory changes on the general aviation fleet, and implement measures to assure the safe operation in the airspace of all aircraft.

##### 1.2 Background

Prior to the current survey method, the FAA used the Aircraft Registration Eligibility, Identification, and Activity Report, AC Form 8050-73, to collect data on general aviation activity and avionics. The form was sent annually to all owners of civil aircraft in the United States and served two purposes: (1) Part 1 was the mandatory aircraft registration revalidation form, and (2) Part 2 was voluntary and applied to general aviation aircraft only, asking questions on the owner-discretionary characteristics of the aircraft such as flight hours, avionics equipment, base location, and use. This information was used by the FAA to estimate aircraft activity.

In 1978, the FAA replaced AC Form 8050-73 with a new system: Part 1 was replaced by a triennial registration program, and Part 2 was replaced by the annual General Aviation Activity and Avionics Survey, FAA Form 1800-54, shown in Figure A.1. The GAAA Survey is conducted annually, based on a statistically selected sample of general aviation aircraft, and it requests the same type of information as Part 2 of AC Form 8050-73. The first survey took place in 1978, collecting data on the 1977 general aviation fleet. The 1991 statistics in this report were derived from the fifteenth survey, which took place in 1992. Benefits resulting from the new system of data collection include quicker processing of the results, improved data quality, and a considerable savings in time and money to both the public and the Federal Government.

FIGURE A.1 1991 GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY QUESTIONNAIRE

Form Approved OMB NO. 2120-0080

<div style="text-align: center;"> <b>GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY</b>                      (As of December 31, 1991)                 </div>			
This report is authorized by Section 311 of the Federal Aviation Act of 1958. This information collection conforms to legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The information you provide will be used only for statistical purposes and will not be published or released in any form that would reveal specific information reported by an individually identifiable respondent.			
<b>INSTRUCTIONS:</b> Please answer questions for the aircraft at right. Mail the completed questionnaire in the enclosed, postage-paid envelope to:		<div style="text-align: right;"> <b>Federal Aviation Administration</b>                      Attention: Executive Resource Associates, Inc.                      Coffer No. 91013                      Arlington, Virginia 22202                 </div>	
<b>1. AIRCRAFT CHARACTERISTICS:</b>			
2. Did you operate this aircraft in 1991 primarily as an air carrier, or lease this aircraft to such air carrier (FAR Parts 121 or 127 operator)? <input type="checkbox"/> YES (Do not complete the rest of this form. Please return form to address shown above in the enclosed, postage-paid envelope.) <input type="checkbox"/> NO This form should be completed for all general aviation aircraft and aircraft operated under FAR Part 135, commuter and air taxi.			
3. What were the total lifetime airframe hours as of December 31, 1991?	LIFETIME HRS	Of the total hours reported in Question 10(b)(c)(d), what percent of the hours did the aircraft fly under?	HRS FLOWN
4. In what State was this aircraft based as of December 31, 1991?		e. Day Visual Meteorological Condition (IMC)	%
5. Was the aircraft flown in Calendar Year 1991?		f. Night Visual Meteorological Condition (VMC)	%
<input type="checkbox"/> YES <input type="checkbox"/> NO (Skip to Question 13)	HRS FLOWN	TOTAL (e+f) 100%	
6. How many hours did this aircraft fly in Calendar Year 1991? (Include estimated rental and leased hours.)		12. How many landings, including water, touch and go landings, did this aircraft perform in each of the following categories in Calendar Year 1991?	NUMBER OF LANDINGS
7. What percent of the hours entered in Question 6 did this aircraft fly in each of the following use categories?	PERCENT OF HRS FLOWN	LOCAL FLIGHT	a.
EXECUTIVE/CORPORATE TRANSPORTATION—Company flying with a professional crew	e.	CROSS COUNTRY FLIGHT	b.
BUSINESS TRANSPORTATION—Individual use of an aircraft for business transportation	b.		
PERSONAL/RECREATION—Flying for personal reasons (Excludes business transportation)	c.		
INSTRUCTIONAL—Flying under the supervision of a flight instructor (Excludes proficiency flying)	d.		
AERIAL APPLICATION—Agriculture, health, forestry, cloud seeding, firefighting, insect control, etc.	e.		
AERIAL OBSERVATION—Aerial mapping/photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, sightseeing (not FAR Part 135), etc.	f.		
OTHER WORK USE—Construction work (not FAR Part 135), helicopter hoist, parachuting, aerial advertising, towing gliders, etc.	g.		
COMMUTER AIR CARRIER—Performs, under FAR Part 135, at least five scheduled round trips per week or carries mail	h.		
AIR TAXI—FAR Part 135 passenger and cargo operations (Excludes commuter air carrier)	i.		
What was the average revenue in dollars per hour for this aircraft in air taxi operation?	j.		
OTHER—Experimentation, R&D, testing, government demonstrations, air shows, air racing, etc.	k.		
TOTAL (a+b+c+d+e+f+g+h+i+j+k)		100%	
8. Was the aircraft rented or leased to others in 1991?	RENTAL HOURS		
<input type="checkbox"/> YES <input type="checkbox"/> NO			
If "YES," for how many rental or leased hours?	e.		
9. What was this aircraft's average rate of fuel consumption in gallons per hour? (If none, enter "NONE" and go to Question 10.)	GALLONS PER HOUR		
Estimate the percent of each fuel and grade used:			
Jet Fuel	b.		
Aviation Fuel 80 Octane	c.		
100 Octane	d.		
100 Octane-Low Lead	e.		
Automotive Gasoline	f.		
Propene	g.		
TOTAL (b+c+d+e+f+g)		100%	
What was the average fuel cost per gallon?	h.		
10. In 1991, how many hours were flown under?	HRS FLOWN		
a. IFR Flight Plan	e.		
b. VFR/0VFR Flight Plan	b.		
c. No Flight Plan	c.		
d. Other/Unknown	d.		
Total Hours (equal to response of Question 6)			
11. Of the IFR flight plan hours reported in Question 10(e), what percent of the hours did this aircraft fly under			
a. Day Instrument Meteorological Condition (IMC)	a.		
b. Day Visual Meteorological Condition (VMC)	b.		
c. Night Instrument Meteorological Condition (IMC)	c.		
d. Night Visual Meteorological	d.		
TOTAL (a+b+c+d)		100%	
<b>13. Does this aircraft have an electrical system to operate avionics equipment?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO <b>Does this aircraft have an Emergency Locator Transmitter?</b> <input type="checkbox"/> YES <input type="checkbox"/> NO			
Check all boxes that reflect this aircraft's current avionics equipment capabilities			
<b>COMMUNICATIONS EQUIPMENT</b> 360 Channels (50 KHz Channel spacing) <input type="checkbox"/> PORTABLE <input type="checkbox"/> FIXED 720 Channels or more (25 KHz Channel Spacing) <input type="checkbox"/> PORTABLE <input type="checkbox"/> FIXED HF Radio <input type="checkbox"/> More than One Communications System <input type="checkbox"/> Cockpit Voice Recorder <input type="checkbox"/> No Communications Equipment <input type="checkbox"/>			
<b>TRANSPONDER EQUIPMENT</b> Mode A Transponder (TSO-C74-b/c) <input type="checkbox"/> Mode C Transponder (Altitude Encoding) <input type="checkbox"/> Mode S Transponder (TSO-C112) <input type="checkbox"/> TCAS I <input type="checkbox"/> TCAS II <input type="checkbox"/> No Transponder Equipment <input type="checkbox"/>			
<b>NAVIGATION EQUIPMENT</b> VOR Receiver 100 Channels <input type="checkbox"/> PORTABLE <input type="checkbox"/> FIXED 200 Channels <input type="checkbox"/> PORTABLE <input type="checkbox"/> FIXED More than One VOR Receiver <input type="checkbox"/> Automatic Direction Finder (ADF) <input type="checkbox"/> Distance Measuring Equipment (DME) <input type="checkbox"/> Area Navigation Equipment (RNAV) <input type="checkbox"/> Long Range Navigation Equipment (LRNAV) <input type="checkbox"/> LORAN C VFR only <input type="checkbox"/> IFR Navigation <input type="checkbox"/> IFR Approach <input type="checkbox"/> OMEGA-VLF <input type="checkbox"/> Other (Doppler, INS, Other) <input type="checkbox"/> Radar Altimeter <input type="checkbox"/> Weather Radar <input type="checkbox"/> Thunderstorm Detection Equipment <input type="checkbox"/> Ground Proximity Warning System (GPWS) <input type="checkbox"/> Global Positioning System (GPS) <input type="checkbox"/> No Navigation Equipment <input type="checkbox"/>			
<b>PRECISION APPROACH EQUIPMENT</b> Localizer <input type="checkbox"/> Marker Beacon <input type="checkbox"/> Glide Slope <input type="checkbox"/> Microwave Landing System <input type="checkbox"/> No Precision Approach Equipment <input type="checkbox"/>			
<b>GUIDANCE AND CONTROL EQUIPMENT</b> Flight Director <input type="checkbox"/> Electronic Flight Instrument System (EFIS) <input type="checkbox"/> Flight Management System <input type="checkbox"/> Autopilot-Axis Controls Longitudinal <input type="checkbox"/> Vertical <input type="checkbox"/> Lateral <input type="checkbox"/> Approach Mode <input type="checkbox"/> Autoland <input type="checkbox"/> Flight Data Recorder <input type="checkbox"/> No Guidance and Control Equipment <input type="checkbox"/>			
<b>14. COMMENTS—Your comments are invited to assist us in improving this survey. Please use the reverse side of this form.</b>			
-Agency Display of Estimated Burden of the General Aviation Activity and Avionics Survey- The public reporting burden for this collection of information is estimated to average 12 minutes per response if you wish to comment on the accuracy of the estimate or to make suggestions for reducing this burden, please direct your comments to FAA and the OMB at the following addresses: <div style="display: flex; justify-content: space-between;"> <div>                         U.S. DOT Federal Aviation Administration                          Statistical Analysis Branch, AMS-420                          800 Independence Avenue, S.W.                          Washington, DC 20591                     </div> <div>                         Office of Management and Budget                          Paperwork Reduction Project                          (2120-0080)                          Washington, DC 20503                     </div> </div>			

## 2. SURVEY COVERAGE

### 2.1 Aircraft

The General Aviation Activity and Avionics (GAAA) Survey covers, through a stratified probability sample, all general aviation aircraft registered in the United States. The term, "general aviation," as used in this survey, is defined as all aircraft in the U.S. civil air fleet except those operated under Federal Aviation Regulations (FAR) Parts 121 and 127. FAR Part 121, as modified by Special Federal Aviation Regulation 38 (SFAR-38), governs air carriers carrying passengers and cargo for hire and conducting scheduled and charter operations with aircraft having a seating capacity of more than 30 seats and/or a payload capacity of more than 7,500 pounds. Thus, general aviation includes aircraft operated under:

- Part 91: General operating and flight rules.
- Part 125: Certification and operations: Airplanes having a seating capacity of 20 or more passengers or a maximum payload capacity of 6,000 pounds or more (but not for hire).
- Part 133: Rotorcraft external load operations.
- Part 135: Air taxi operators and commercial operators.
- Part 137: Agricultural aircraft operations.

Since the term "general aviation" is not always defined in the same way from aviation publication to aviation publication, it is often a source of confusion to users of general aviation statistics. The point on which the various definitions disagree is the category (air carrier or general aviation) in which to place air taxis and commuter air carriers operating under FAR Part 135. The GAAA Survey has always used the above definition for general aviation, which includes the air taxis, commuter air carriers and air travel clubs. Thus, it is essential for the user to understand the definition of general aviation as it applies to the sources he or she is using, so that proper comparisons of data can be made.

Certain aircraft meeting the general aviation criteria have been excluded from the survey. This group consists of aircraft registered to dealers, aircraft in the process of being sold or with registration pending, and aircraft for which not enough information was available to categorize them properly for sampling purposes.

General aviation offers such varied services as air taxi, air cargo, industrial, agricultural, business, personal, recreational, instructional, research, patrol, and sport flying. General aviation aircraft range in complexity from simple gliders and balloons to four engine turbojets.

## 2.2 Geographic

The sample survey conducted by the FAA covers general aviation aircraft registered with the United States Aircraft Registry as of December 31, 1991. Over 99 percent of these aircraft are registered to owners living in the 50 states; the District of Columbia; Puerto Rico; and other U.S. territories, which include American Samoa, Guam, and the Virgin Islands.<sup>1</sup>

## 2.3 Content

The survey questionnaire, FAA Form 1800-54 shown previously in Figure A.1, requests the aircraft owner to provide the following information on the sampled aircraft's characteristics and uses for various periods:

- 1) hours by use, IFR hours, percentage of hours flown in Instrument Meteorological Conditions (IMC) and Visual Meteorological Conditions (VMC) during the day and evening, fuel consumption grade and cost, and number of local and cross country landings for the entire calendar year 1991;
- 2) airframe hour reading and the aircraft's base location as of December 31, 1991; and
- 3) avionics equipment currently on board the aircraft.

## 3. SURVEY METHOD

The survey data were collected by mailing the questionnaire to the owners of the sampled aircraft in three mailings. The first mailing in February 1992 covered all 29,646 aircraft in the sample and had a response rate of 43.6 percent, as shown in Table A.1. This accounted for approximately 77 percent of the total responses to the survey. The second mailing in April 1992 included only those aircraft in the sample that had not yet responded. The second mailing had a response rate of 15.8 percent, which accounted for approximately 18 percent of the total responses to the survey. The third mailing in May 1992 was sent to the owners of the sampled aircraft who had not responded to the first or second mailings as of a specified date. The third mailing produced a response rate of 8.5 percent, or approximately 5 percent of the total responses to the survey. The valid survey responses resulted in an overall a response rate of 56.9 percent.

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<sup>1</sup>Source: FAA Aircraft Registration Master File as of December 31, 1991.

TABLE A.1 SUMMARY OF RESPONSE INFORMATION

PHASE	VALID SAMPLE SIZE	# RESPONSES	RESPONSE RATE	%TOTAL RESPONSE
1st Mailing	29,646	12,940	43.6	76.8
2nd Mailing	19,430	3,065	15.8	18.2
3rd Mailing	10,004	854	8.5	5.0
TOTAL:	29,646	16,859	56.9	100.0

Each of the three mailings was accompanied by a cover letter, shown respectively in Figures A.2, A.3, and A.4 at the back of this Appendix.

#### 4. SAMPLE DESIGN

##### 4.1 Sample Frame and Size

The FAA Mike Monroney Aeronautical Center in Oklahoma City maintains the Aircraft Registration Master File, which is the official record of registered civil aircraft in the United States. The sample frame, the list of aircraft from which the sample was selected, was provided by this organization based upon criteria specified by APO-110.

Several changes which occurred between the 1977 and 1978 survey cycles impacted the population, frame and, ultimately, the survey results. In January 1978, the FAA implemented a new procedure, known as triennial revalidation, for maintaining its master file. Instead of requiring all aircraft owners to revalidate and update their aircraft registration annually, FAA only required revalidation for those aircraft owners who had not contacted the FAA registry for three years. This less frequent updating of the master file affected its accuracy and representativeness. Two major consequences for the survey results are discussed below.

- 1) The accuracy of owners' addresses has deteriorated. The percentage of questionnaires returned by the post office has ranged from 8 to 13 percent since 1987. Postal returns for 1991 were 12.0 percent, up from 1990's 10.8 percent. Prior to the implementation of the 1978 FAA procedures, the postal return rate averaged 2 percent. From 1977 to 1982, following the implementation of the 1978 FAA procedures, the post office returns more than tripled from 2 percent to 6.8 percent. The high post office return rate partially explains the lower survey response rates experienced since 1977.
- 2) The master file contained a residue of aircraft which, under the old revalidation system, would have been deregistered and purged from the file but now remain under the new system. Consequently, the population counts were inflated resulting in artificially large increases in the estimates of the number of active general aviation aircraft from 1977 to 1978, and from 1978 to 1979.

Also during this period, the entire Aircraft Registration System was installed on a new computer system. At the same time, FAA modified many of the updating and processing procedures. It is quite possible that these changes affected the registration file.

Finally, new legislation required two formerly ineligible categories of aircraft to be registered with the U.S. Registry. From 1977 to 1978, the definition of a registered general aviation aircraft changed to include these two new groups:

- 1) aircraft owned by individual citizens of foreign countries who are permanent residents of the United States, and
- 2) aircraft owned by non-U.S. corporations which are organized and doing business under U.S. law (as long as the aircraft are based and used primarily in the United States).

It is estimated that these aircraft constitute less than one half of one percent of the general aviation fleet.

These changes thus affected the contents of the Aircraft Registration Master File and, consequently, the GAAA Survey results. While it is difficult to quantify the effects of these changes, FAA estimates that they caused the survey results to overestimate aircraft population and hours flown by five percent or less.

The sample frame is made up of all aircraft identified as general aviation in the master file (according to the definition in Section 2.1), with the following exceptions:

- 1) aircraft registered to dealers;
- 2) aircraft with "Sale Reported" or "Registration Pending" appearing in the record instead of the owner's name;
- 3) aircraft with a known, inaccurate owner's address; and
- 4) aircraft with missing state of registration, aircraft make-model-series code, or aircraft type information.

For calendar year 1991, the sample frame consisted of 265,041 general aviation aircraft records from which 29,646 records were sampled, yielding a 11.2 percent sample. Table A.2 shows, by aircraft type, the distribution of the sample compared to that of the population. This clearly demonstrates the disproportionality of the sample to the population, an intended result of the sample design to gain efficiency and to control errors.

#### 4.2 Description of Sample Design

The sample design employed was a stratified, systematic design from a random start. The sample was selected from a two-way stratified frame matrix. The two stratification criteria were:

- 1) state or territory of aircraft registration, and
- 2) a variable called the make-model index, constructed from a combination of the aircraft type and the Service Difficulty Reporting (SDR) aircraft manufacturer/model group.

TABLE A.2 SAMPLE AND POPULATION DISTRIBUTION BY AIRCRAFT TYPE

<u>TYPE</u>	<u>APPROXIMATE POPULATION</u>	<u>SAMPLE SIZE</u>	<u>SAMPLE AS % OF POPULATION</u>
<b>Fixed Wing - Piston</b>			
1 Engine: 1-3 Seats	88,322	9,847	11.1
1 Engine: 4+ Seats	118,049	7,735	6.6
2 Engine: 1-6 Seats	17,359	2,290	13.2
2 Engine: 7+ Seats	8,464	1,599	18.9
Piston: Other	272	120	44.1
<b>Fixed Wing - Turboprop</b>			
2 Engine: 1-12 Seats	4,482	826	18.4
2 Engine: 13+ Seats	1,253	386	30.8
Turboprop: Other	544	182	33.5
<b>Fixed Wing - Turbojet</b>			
2 Engine	4,403	811	18.4
Turbojet: Other	638	262	41.1
<b>Rotorcraft</b>			
Piston	5,848	1,786	30.5
Turbine	4,626	1,070	23.1
<b>Other Aircraft</b>	<u>10,781</u>	<u>2,732</u>	25.3
<b>TOTAL:</b>	265,041	29,646	11.2

The 54 levels of the state criterion and the 397 levels of the make-model index yielded a matrix of 54 by 397 or 21,438 cells (strata) among which the frame was divided for sampling. Some of these cells have no population.

The FAA's primary requirement was for estimates of average annual flight hours per aircraft, necessitating optimal determination of sample sizes based on flight hour variation by state and by make-model index, and not on population. Hence, the sample was not proportional to size, and a sampling fraction was determined

for each cell with a non-zero population. Sampling was then performed systematically from a random start within individual cells, yielding a final sample size of 29,646 general aviation aircraft.

Initially, each aircraft in the sample was given a weight which was the inverse of its cell's sampling fraction, and which corresponded to the number of aircraft in the sample frame represented by that aircraft. When all responses to the survey were tallied, each weight was adjusted according to the response rate for the cell, counting an aircraft for which no survey questions were answered as a non-respondent, and an aircraft for which at least one question was answered as a respondent.

The weight adjustment is described as follows:

- 1) non-respondents' weights were changed to zero; and
- 2) the weights of all responding aircraft were adjusted uniformly by dividing the initial weight by the response rate for the cell.

This method of weight adjustment has several attributes. It actually incorporates the response rates into the final weights and simplifies estimation procedures.

#### 4.3 Error

Errors associated with estimates derived from sample survey results fall into two categories: sampling and non-sampling errors.<sup>2</sup> Sampling errors occur because the estimates are based on a sample rather than the entire population.

Non-sampling errors arise from a number of sources such as non-response, inability or unwillingness of respondents to provide correct information, differences in interpretation of questions, mistakes in recording or coding the data obtained, and others. The following sections discuss the two types of errors.

#### 4.4 Sampling Error

In a designed survey, the sampling error associated with an estimate is generally unknown, but a measurable quantity, known as the standard error, is often used as a guide to the potential magnitude of sampling error. The standard error measures the variation which would occur among the estimates from all possible samples of the same design from the same population. It measures the precision with which an estimate approximates the average result of all possible samples or the result of a survey in which all elements of the population were sampled.

Through sample design techniques, the statistician can control the sizes of standard errors on a few key variables, known as design variables, in the survey. The design variables in the GAAA Survey are the average annual hours flown per

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<sup>2</sup>Standards for Discussion and Presentation of Errors in Data, U.S. Department of Commerce, Bureau of the Census, (Washington, DC, 1974), pp. 11-14.



aircraft by aircraft type, by aircraft manufacturer/model characteristics and by state of aircraft registration. The sample is designed to produce standard errors on these variables at levels specified by the FAA. No controls are placed on the standard errors of the non-design variables.

An estimate and its standard error make it possible to construct an interval estimate with the prescribed confidence that the interval will include the average value of the estimate from all possible samples of the population. Table A.3 on the following page shows selected interval widths and their corresponding confidence.

TABLE A.3 CONFIDENCE OF INTERVAL ESTIMATES

<u>WIDTH OF INTERVAL</u>	<u>APPROXIMATE CONFIDENCE THAT INTERVAL INCLUDES AVERAGE VALUE</u>
1 Standard error	68%
2 Standard error	95%
3 Standard error	99%

Every estimate resulting from a sample survey, whether it be for a design or non-design variable, has sampling error associated with it. The user of survey results must consider sampling error along with the point estimate itself when making inferences or drawing conclusions about the sample population. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. To facilitate the comparison of estimates and their errors, the tables in this publication display standard errors for all estimated quantities. For the most part, the measure of precision presented in this report is the percent standard error (% s.e.), which is merely the ratio of the standard error to the estimate times 100 (to convert the fraction to a percent). In addition to immediately communicating the relative precision of the estimate, it allows ready comparison of the survey's performance across variables. The following is an example of how to use the % s.e.: from Table 2.1, a 95 percent confidence interval for the number of active rotorcraft with piston engines would be 2,470 plus or minus 2 (7.6/100)(2,470) or the interval between 2,125 and 2,815. One would say with 95 percent confidence that the number of active rotorcraft with piston engines lies somewhere between 2,125 and 2,815. Another way of expressing this is that we are highly confident (95 percent) that the number of active rotorcraft with piston engines is within plus or minus 2(7.6) percent, or 15.2 percent of 2,470.

#### 4.5 Non-Sampling Error

Non-sampling error can be reduced through survey design, although the amount of reduction is difficult, if not impossible, to quantify in any given design. There are, however, various techniques which can limit non-sampling error.

Several of these techniques were incorporated into the design of the GAAA Survey and are itemized below:

- 1) A second mailing and a prompting (reminder) letter were sent to nonrespondents in addition to the original mailing in order to improve the response rate, since a low response rate is a major cause of non-sampling error. The 1991 response rate of 56.9 percent marks a decrease from the 80 percent response rate achieved in 1977 (the first year of the survey) it does represent an increase from 1988's response rate of 55.5 percent. Possible causes for the less than 100 percent sample rate response include:
  - o The deterioration of the currency of aircraft owners' addresses in the Aircraft Registration Master File, the sample frame. This caused a gradual increase in the percentage of questionnaires returned undelivered by the postmaster.
  - o Repeated sampling of aircraft in two and possibly three or four successive years. Due to the design of the sample to achieve specified precision in estimates for states and manufacturer/model groups of aircraft, it is impossible to avoid sampling some of the same aircraft in consecutive years. Owners of such aircraft may have been less willing to respond in 1991 than in previous years.

Table A.4, on the following page, reveals the responses by aircraft type. Last year, there was one aircraft type with a response rate less than 40 percent, the "Other" piston group, with 36.7 percent. This year, again, only the "Other" piston group, with 30.8 percent, had a response rate less than 40 percent.

- 2) To assure the owners of the confidentiality of their responses, the back side of the questionnaire cover letter informed them that:

"The FAA has determined that the information you provide in this survey is exempt from public disclosure under the Freedom of Information Act."<sup>3</sup>

- 3) Comprehensive editing procedures insured the accuracy of the data transcription to machine readable form and the internal consistency of responses.
- 4) The official and most accurate source of information available on the general aviation fleet, the FAA Aircraft Registration Master File, was used as the sampling frame.
- 5) Results were adjusted using data from a survey of nonrespondents. This adjustment is described in Section 5, Adjustments Based on a Survey of Nonrespondents, on page A-11.

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<sup>3</sup>See Figure A.2.

TABLE A.4 RESPONSE RATE BY AIRCRAFT TYPE

<u>AIRCRAFT TYPE</u>	<u>RESPONSE RATE</u>
Fixed Wing - Piston	
1 Engine: 1-3 Seats	60.1%
1 Engine: 4+ Seats	61.9
2 Engine: 1-6 Seats	54.6
2 Engine: 7+ Seats	40.7
Piston: Other	30.8
Fixed Wing - Turboprop	
2 Engine: 1-12 Seats	59.2
2 Engine: 13+ Seats	41.7
Turboprop: Other	46.7
Fixed Wing - Turbojet	
2 Engine	63.0
Turbojet: Other	52.3
Rotorcraft	
Piston	45.6
Turbine	48.3
Other Aircraft	54.9
OVERALL	56.9%

## 5. ADJUSTMENTS BASED ON A SURVEY OF NONRESPONDENTS

### 5.1 The Nonrespondent Survey

The substantial nonresponse rate for the GAAA Survey and developments in the sampling frame outlined above have led to a concern that there may be a response bias in the survey, especially with respect to the percent and number of aircraft that are active. The hypothesis is that aircraft of owners that do not respond to the GAAA Survey are less likely to be active than aircraft of owners that do. If this hypothesis is correct, the results of the survey overstate the percent and number of active aircraft.

In order to test this hypothesis, and to provide data for adjusting the GAAA Survey findings, a survey of GAAA nonrespondents was conducted in 1990. This survey focused on two substantive questions:

Was this aircraft flown during calendar year 1990?

If so:

How many hours did this aircraft fly in calendar year 1990?

The survey of GAAA nonrespondents also included screening questions to determine whether the respondent still owned the aircraft, whether the aircraft was flown as an air carrier, and (if so) under which FAR Part Number.

The survey of GAAA nonrespondents was conducted by telephone. The sample for the survey was selected at random from the nonrespondents in the 1990 GAAA Survey sample. The sampling objective was to obtain a sample large enough to achieve 95 percent confidence that the telephone survey estimate of the proportion of nonrespondents with active aircraft would be within 10 percent of the true proportion. A total of 1,203 aircraft owners were included in the telephone survey. Of the aircraft owners in the sample, telephone numbers could not be obtained for 435 (36.2 percent), 300 (24.9 percent) could not be reached or refused to respond, 89 (7.4 percent) no longer owned the aircraft and were asked no further questions, and 379 (31.5 percent) provided the survey information sought. This number of respondents providing information was adequate to meet the statistical objectives of the sample design.

The principal results of the telephone survey were estimates of the percent of aircraft among GAAA Survey nonrespondents that were active and the average hours flown by these aircraft. Among the telephone survey respondents, 61.7 percent reported active general aviation use of their aircraft. This is substantially less than the GAAA Survey estimates for 1990 (79.7 percent) and for 1991 (80.3 percent), and the difference between the GAAA Survey respondents and the nonrespondents is statistically highly significant. The active telephone survey respondents reported an average of 158.6 annual hours flown, which is much the same as the average of annual hours flown reported in the 1990 or 1991 GAAA Survey.

## 5.2 Adjustment of the 1991 GAAA Survey Data

The 1990 Nonresponse Survey data were used to adjust the 1991 GAAA Survey results. Adjustments were made for the percent and number of active aircraft and for average hours flown. Total hours flown were adjusted indirectly, since they are derived from the number of active aircraft and average hours flown. In essence, the adjustment was made by replacing the GAAA Survey results for percent active and average hours with weighted averages of the results of the 1991 GAAA Survey and the 1990 Nonresponse Survey. The exact procedure is described below. The adjustments were made for each aircraft type, but they carry over to results for SDR groups, regions and States. Adjustments were made in all tables in Chapters 2, 3, 4, 5, and 6 in which number or percent of aircraft active, average hours flown, or total hours flown appear. Data for years prior to 1991 in Figures 3.2 and 3.3 in Chapter 3 were adjusted proportionally to the corresponding 1991 data, so that trends would not be distorted by the introduction of adjustments in 1991. Tables in Chapters 7 and 8 were not adjusted, because they are driven entirely or primarily by avionics data, which were not collected in the Telephone Survey.

Weighted averages of the percent of aircraft active and average hours flown were computed as part of the adjustment procedure. The values of percent of aircraft active and average hours flown were taken from the 1991 GAAA Survey results and the 1990 Telephone Survey results. The weights used were the initial weights for the aircraft that responded to the 1991 GAAA Survey and for 1991 GAAA Survey

nonrespondents. Weights of the GAAA Survey forms that were returned by the postmaster were not used in the calculations. This "non-treatment" of postmaster returns (PMRs) in the sample had the effect of assuming that PMRs are similar to the average adjusted results. Separate weighted averages were calculated for each of the thirteen aircraft types in the GAAA survey. The weighted averages for percent of aircraft active were calculated as follows:

$$\frac{\{(\text{Percent Active})_{Ri} \times (\text{Total Weight})_{Ri}\} + \{(\text{Percent Active})_{TRi} \times (\text{Total Weight})_{NRi}\}}{(\text{Total Weight})_{Ri} + (\text{Total Weight})_{NRi}}$$

Where: R = GAAA Respondents  
 TR = Telephone Survey Respondents  
 NR = GAAA Nonrespondents  
 i = Aircraft Type (i = 1 to 13)

The weighted averages for average hours flown were calculated as follows:

$$\frac{\{(\text{Average Hours})_{Ri} \times (\text{Total Weight})_{Ri}\} + \{(\text{Average Hours})_{TRi} \times (\text{Total Weight})_{NRi}\}}{(\text{Total Weight})_{Ri} + (\text{Total Weight})_{NRi}}$$

Where: R = GAAA Respondents  
 TR = Telephone Survey Respondents  
 NR = GAAA Nonrespondents  
 i = Aircraft Type (i = 1 to 13)

The actual adjustment to the GAAA results was made by modifying the final weight of each aircraft that responded to the GAAA Survey. First the weighted averages were converted into adjustment factors for each aircraft type, and then the weight of each responding aircraft was multiplied by the adjustment factor for the aircraft type of that aircraft. The adjustment factors were computed by dividing the weighted averages of the percent active and average hours flown by the unadjusted GAAA Survey results for these values, i.e.:

$$\frac{(\text{Percent Active})_{WAi}}{(\text{Percent Active})_{Ri}} \quad \text{and} \quad \frac{(\text{Average Hours})_{WAi}}{(\text{Average Hours})_{Ri}}$$

Where: WA = Weighted Average (calculated above)  
 R = GAAA Survey Respondents  
 i = Aircraft Type (i = 1 to 13)

Weights of all aircraft in an aircraft type were adjusted by the same proportional amount. This procedure provided a limited amount of disaggregation of the adjustment. Among other implications of this procedure, all SDR groups within each aircraft type were also adjusted by the same proportional amount. Adjusting the weights of each individual respondent aircraft allowed results for regions and States to be adjusted, even though the adjustment factors were computed at the aircraft type level. Adjustment at the individual record level also produced adjustments in the standard errors.

The adjustment lowered the estimate of the total number of active aircraft by 6.7 percent. The numbers of active aircraft in nine individual aircraft types also fell, although there were small upward adjustments for four aircraft types.

The adjustment lowered the overall estimate of average hours flown by 0.1 percent. Average hours flown was adjusted downward for nine aircraft types and upward for four aircraft types, the largest upward adjustment being for turbine rotorcraft. The adjustment lowered estimate of total hours flown by 7.7 percent, with hours flown adjusted downward for ten aircraft types and upward for three.



U.S. Department  
of Transportation  
Federal Aviation  
Administration

800 Independence Ave., S.W.  
Washington, D.C. 20591

February 1992

Dear Aircraft Owner:

You are one of the 30,000 general aviation aircraft owners selected at random to participate in the 1991 General Aviation Activity and Avionics Survey. In such a survey, your input is vital because your response will have a significant impact on the overall estimates of aircraft hours flown, miles flown, fuel consumption, and avionics capability for the entire general aviation fleet.

The information you provide is used in a variety of ways. It helps to determine the impact of proposed changes to some of our regulations and to pinpoint potential safety problems. The information also helps to forecast our future work force and new facility requirements (such as runways, landing aids, etc.). These are just a few examples of the uses we make of your response to the survey.

Enclosed is a questionnaire requesting information for calendar year 1991. *After reading the instructions and the information on the back of this letter, please answer all questions for the aircraft identified on the form.*

I urge you to complete the questionnaire and use the enclosed envelope to mail it in today. Your prompt response will eliminate the need for additional followup contacts.

If you have any questions or need further assistance, please call Mr. Shung-Chai Huang at (202) 267-9943 or Ms. Patricia Beardsley at (202) 267-8032.

We thank you for your participation.

Sincerely,

Steve Hopkins  
Manager, Statistical Analysis Branch,  
AIT-420

Enclosure

## **Why does the FAA collect this information?**

For the past 14 years, the FAA has conducted an annual sample survey to collect statistical information on the use and characteristics of the general aviation fleet. The information collected helps the FAA understand more about general aviation activities, assess the impact of general aviation on the National Airspace System, and determine its need for traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industries and individuals, for safety analysis, planning, forecasting, research and development. We have made a concerted effort to minimize the number of questions we ask you, while still meeting the needs of the government and the public for aviation information.

## **Are the survey responses kept confidential?**

**Absolutely!!!** This annual information collection conforms to legal and administrative standards established by the Federal Government to assure confidential treatment of statistical information. The information you have provided in the past decade has never been published or released in any form that would reveal specific information reported by any individually identifiable respondent.

## **Why was I selected for this survey?**

This survey covers general aviation aircraft and aircraft operated by air taxis and commuter air carriers. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1991. The Registry shows you as the registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed. Since the survey sample is randomly selected, it is possible that your aircraft may be selected in successive years or that more than one of your aircraft may be selected this year. This can happen if the number of aircraft of the type you own has a small representation in the general aviation fleet. If more than one of your aircraft is selected for this year's survey, you will receive a questionnaire for each aircraft under separate cover. Please answer all questions for the aircraft identified on the top right-hand corner of the questionnaire. If you cannot provide a precise answer to any questions, please make your best estimate.

## **What should I do if . . .**

- ➔ **IF** you are no longer in possession of this aircraft but were the registered owner on December 31, 1991, try to answer all the questions. If your aircraft was sold prior to December 31, 1991, please forward this mail to the new owner for response.
- ➔ **IF** your aircraft, for whatever reasons, was not in use during calendar year 1991, *answer questions 2-5 and 13 and return the questionnaire to FAA.* The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.
- ➔ **IF** your aircraft was operated by an airline (FAR Part 121 or 127 operator), *indicate this in question 2 and return the questionnaire to FAA.*
- ➔ **IF** your aircraft was operated primarily by another person or company (e.g. leased), obtain the necessary information from the operator, or forward this mail to the person or firm for response.
- ➔ **IF** your aircraft was stolen, destroyed, lost or donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Aircraft Registry, do so immediately by writing to:

**Aircraft Registration Branch, AVN-450  
7500 South MacArthur Blvd.  
Oklahoma City, OK 73125.**

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.





U.S. Department  
of Transportation  
Federal Aviation  
Administration

800 Independence Ave., S.W.  
Washington, D.C. 20591

March 1992

Dear Aircraft Owner:

We need your input!

In February, we sent you a General Aviation Activity and Avionics Survey Questionnaire to compile 1991 aircraft activity and avionics information. As of this date, we have not received your response.

In case our first mailing never reached you or was misplaced, we have enclosed another identical questionnaire with a return, postage-paid envelope for your convenience. *I urge you to read the instructions on the back page of this letter, complete the questionnaire, and use the enclosed envelope to return it to us today.* If you have any questions or need further assistance, please contact Mr. Shung-Chai Huang at (202) 267-9943 or Ms. Patricia Beardsley at (202) 267-8032. If your response is already in the mail, we thank you for your cooperation.

We look forward to receiving your response so that we can know more about the general aviation flying and, thereby, serve you better. We thank you for your participation.

Sincerely,

Steve Hopkins  
Manager, Statistics Analysis Branch,  
AIT-420

Enclosure

## *The 1991 General Aviation Activity and Avionics Survey*

---

### **Why does the FAA collect this information?**

For the past 14 years, the FAA has conducted an annual sample survey to collect statistical information on the use and characteristics of the general aviation fleet. The information collected helps the FAA understand more about general aviation activities, assess the impact of general aviation on the National Airspace System, and determine its need for traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industries and individuals, for safety analysis, planning, forecasting, research and development. We have made a concerted effort to minimize the number of questions we ask you, while still meeting the needs of the government and the public for aviation information.

### **Are the survey responses kept confidential?**

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### **Why was I selected for this survey?**

This survey covers general aviation aircraft and aircraft operated by air taxis and commuter air carriers. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1991. The Registry shows you as the registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed. Since the survey sample is randomly selected, it is possible that your aircraft may be selected in successive years or that more than one of your aircraft may be selected this year. This can happen if the number of aircraft of the type you own has a small representation in the general aviation fleet. If more than one of your aircraft is selected for this year's survey, you will receive a questionnaire for each aircraft under separate cover. Please answer all questions for the aircraft identified on the top right-hand corner of the questionnaire. If you cannot provide a precise answer to any questions, please make your best estimate.

### **What should I do if . . .**

- ➔ **IF** you are no longer in possession of this aircraft but were the registered owner on December 31, 1991, try to answer all the questions. If your aircraft was sold prior to December 31, 1991, please forward this mail to the new owner for response.
- ➔ **IF** your aircraft, for whatever reasons, was not in use during calendar year 1991, *answer questions 2-5 and 13 and return the questionnaire to FAA.* The fact that your aircraft was not flown during the year is just as important as the fact that it was flown.
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- ➔ **IF** your aircraft was operated primarily by another person or company (e.g. leased), obtain the necessary information from the operator, or forward this mail to the person or firm for response.
- ➔ **IF** your aircraft was stolen, destroyed, lost or donated to an organization, or otherwise not in your possession, and you have not yet notified the FAA Aircraft Registry, do so immediately by writing to:

**Aircraft Registration Branch, AVN-450  
7500 South MacArthur Blvd.  
Oklahoma City, OK 73125.**

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.



U.S. Department  
of Transportation  
Federal Aviation  
Administration

800 Independence Ave., S.W.  
Washington, D.C. 20591

May 1992

Dear Aircraft Owner:

This is your last opportunity to participate in the 1991 General Aviation Activity and Avionics Survey. We need your help.

In February and March, we sent you a general aviation activity and avionics survey questionnaire to compile the 1991 aircraft activity and avionics information. As of this date, we have not received your response.

In case the previous mailings never reached you or were misplaced, we have enclosed another identical questionnaire with a return, postage-paid envelope for your convenience. *I urge you to read the instructions and the survey information on the back of this letter, complete the questionnaire, and use the enclosed envelope to return it to us today.* If you have any questions or need further assistance, please call Mr. Shung-Chai Huang at (202) 267-9943 or Ms. Patricia Beardsley at (202) 267-8032. If your response is already in the mail, we thank you for your cooperation.

We look forward to receiving your response so that we can know more about the general aviation flying and, thereby, serve you better.

Sincerely,

A handwritten signature in cursive script, appearing to read "Steve Hopkins".

Steve Hopkins  
Manager, Statistics Analysis Branch,  
AIT-420

Enclosure

## *The 1991 General Aviation Activity and Avionics Survey*

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### **Why does the FAA collect this information?**

For the past 14 years, the FAA has conducted an annual sample survey to collect statistical information on the use and characteristics of the general aviation fleet. The information collected helps the FAA understand more about general aviation activities, assess the impact of general aviation on the National Airspace System, and determine its need for traffic facilities and services. These data are used by the Federal, state, and local governments, as well as by private industries and individuals, for safety analysis, planning, forecasting, research and development. We have made a concerted effort to minimize the number of questions we ask you, while still meeting the needs of the government and the public for aviation information.

### **Are the survey responses kept confidential?**

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### **Why was I selected for this survey?**

This survey covers general aviation aircraft and aircraft operated by air taxis and commuter air carriers. The survey sample is randomly selected, based upon the FAA Aircraft Registry as of December 31, 1991. The Registry shows you as the registrant of this aircraft on that date. Your aircraft is one of approximately 30,000 general aviation aircraft selected to be surveyed. Since the survey sample is randomly selected, it is possible that your aircraft may be selected in successive years or that more than one of your aircraft may be selected this year. This can happen if the number of aircraft of the type you own has a small representation in the general aviation fleet. If more than one of your aircraft is selected for this year's survey, you will receive a questionnaire for each aircraft under separate cover. Please answer all questions for the aircraft identified on the top right-hand corner of the questionnaire. If you cannot provide a precise answer to any questions, please make your best estimate.

### **What should I do if . . .**

- ➔ **IF** you are no longer in possession of this aircraft but were the registered owner on December 31, 1991, try to answer all the questions. If your aircraft was sold prior to December 31, 1991, please forward this mail to the new owner for response.
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- ➔ **IF** your aircraft was operated by an airline (FAR Part 121 or 127 operator), *indicate this in question 2 and return the questionnaire to FAA.*
- ➔ **IF** your aircraft was operated primarily by another person or company (e.g. leased), obtain the necessary information from the operator, or forward this mail to the person or firm for response.
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Aircraft Registration Branch, AVN-450  
7500 South MacArthur Blvd.  
Oklahoma City, OK 73125.

The signature of the aircraft owner of record is required to make any changes to the aircraft registration record. If you have any questions regarding the registration of your aircraft, please call (405) 680-3116.

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 1 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
ACQCORF22	8850908	AIRPTSA	1850110	AMTR	BZR	056134H	AMTR	STITS	865048G	AMTRJBBRIANS	05613BR
ADAMS A50S	0050101	AIRPTSA	1850112	AMTR	C2	0563781	AMTR	TAUBE	0566460	AMTRJSDF9	0565246
ADAMS A50S	0050103	AIRPTSA	1850114	AMTR	DEHUNN	1302635	AMTR	TC2	056139R	AMTRKBTWNSTR	05613QS
ADAMS A50S	0050105	AIRPTSA	1850118	AMTR	DK1	0564406	AMTR	TMK	4220120	AMTRLASPEC	05601SU
ADAMS AB	0050100	AIRPTSA	1850120	AMTR	DRFTR	05675WR	AMTR	TORO	05655E9	AMTRLABABAT	056125Q
ADAMSTT11	8950104	AIRPTSA	1850122	AMTR	DS1	056136N	AMTR	TSON	0561253	AMTRLEKITTEN	0561232
AERORSJ2	5500604	AIRPTSA	4570620	AMTR	EARLY	056165J	AMTR	ULMAT	05612RF	AMTRLMALCO	05611GL
AEROSP262	6380502	AIRPTSA	4570624	AMTR	FIRBLT	05616XL	AMTR	VAN	0561383	AMTRLMWLAC	05613VU
AEROSP262	6380526	AIRSPCK18	3850101	AMTR	FISHER	05616NA	AMTR	VECTY	05612DU	AMTRLZDUTCH	0562898
AEROSP360	8680662	AIRSPCK18	0440104	AMTR	GEM260	05613FX	AMTR	VICKER	05613CE	AMTRMEVMI	05601TD
AEROSP601	8680661	AIRTRCAT300	0390101	AMTR	GRLAKE	39122BB	AMTR	VIGNIT	0560960	AMTRMEFF2	0562581
AEROSPAS355	8680807	AIRTRCAT300	0390103	AMTR	GULL	05616WV	AMTR	VK30	05616PF	AMTRMR2	05611DD
AEROSPAS355	8680805	AIRTRCAT300	0390104	AMTR	HP11	0564752	AMTR	VOLMER	9570416	AMTRMIG15	056129C
AEROSPAS355	8680806	AIRTRCAT400	0390202	AMTR	HUMMER	0564475	AMTR	W11	05653C6	AMTRMJSLOVIN	056123A
AEROSPAS355	8680810	AIRTRCAT400	0390203	AMTR	JM101	05601UN	AMTR	WD6	056013R	AMTRMVSANSAC	05608T7
AEROSPAS355	8680812	AIRTRCAT400	0390204	AMTR	JP3501	0561697	AMTR	WHEELR	05616ZC	AMTRMSF85	05613KQ
AEROSPATR42	8680900	AIRTRCAT500	0390303	AMTR	KV3	0560887	AMTR	WODSTK	05647Y3	AMTRNANORD	63801Q2
AEROSPATR42	8680920	ALCAIRARGO	0530102	AMTR	LGTHSR	0564573	AMTR	XTC	9570728	AMTRNCLNCAIR	056129G
AEROSPATR42	8680930	AMD FALC10	2730101	AMTR	LITBUG	05616DC	AMTR	YAK	05612KL	AMTRNCLNCAIR	05612ML
AEROSPATR72	8680940	AMD FALC20	2720302	AMTR	LNGSTR	056185T	AMTR	YAK	05616FC	AMTRNCLNCAIR	05613B5
AEROSPAS316	8680207	AMD FALC20	2720303	AMTR	MARCO	056162B	AMTR	ZIA	0130240	AMTRNCLNCAIR	05613KS
AEROSPAS316	8680515	AMD FALC20	2720304	AMTR	MAULE	5470210	AMTR	ZPYSPT	05646BN	AMTRNCLNCAIR	05644KB
AEROSPAS316	8680605	AMD FALC20	2720306	AMTR	MENZIE	13027BJ	AMTR	ZUNI	0130202	AMTRPEFLSTR	05604T4
AEROSPAS316	8680615	AMD FALC20	2730103	AMTR	MORRY	05616HN	AMTR	ZUNI	0130230	AMTRP IAX3	05604T8
AEROSPAS319	8680607	AMD FALC20	2730150	AMTR	N3	0561235	AMTR	ZUNI	00301CD	AMTRP IAX3	05604UQ
AEROSPAS365	8680668	AMD FALC50	2730106	AMTR	OSPXY	05612RY	AMTR	ZUNI	0030537	AMTRP IAX3	05637C2
AEROSPAS365	8680669	AMEGLEEAGLET	0650102	AMTR	P51X	1690462	AMTR	ZUNI	13027GG	AMTRP IAX3	05637C9
AERPEGM100S	0200506	AMEGLEEAGLET	0650104	AMTR	PHENIX	05616XH	AMTR	ZUNI	0564215	AMTRP IAX3	7001213
AERSPC377	0160208	AMEGLEEAGLET	0650106	AMTR	PITTS	7221024	AMTR	ZUNI	05613UQ	AMTRP IAX3	056125C
AETNA 2SA	0220102	AMEGLEEAGLET	0650108	AMTR	PLI	05613E7	AMTR	ZUNI	05658MR	AMTRP IAX3	05658UG
AGUSTA206AGS	0260301	AMERANS56	0580104	AMTR	PROGRS	05612UY	AMTR	ZUNI	05613EU	AMTRP IAX3	05647H6
AGUSTA206AGS	0260302	AMERAPPILGRM	0620104	AMTR	PULSAR	056165H	AMTR	ZUNI	05613VL	AMTRP IAX3	05676V6
AGUSTAA109	0260109	AMRGENAG5B	3990100	AMTR	PURUT	056125L	AMTR	ZUNI	05611CH	AMTRP IAX3	056137V
AGUSTAA109	0260112	AMTR 10300S	7220529	AMTR	RAIDER	05613A3	AMTR	ZUNI	05613LA	AMTRP IAX3	0562336
AGUSTAA109	0260118	AMTR 3A	05601BP	AMTR	RANS	05612R2	AMTR	ZUNI	0566041	AMTRP IAX3	056033X
AGUSTAA109	0260120	AMTR 503	13027JM	AMTR	RANS	0561654	AMTR	ZUNI	0564014	AMTRP IAX3	0569084
AGUSTAA109	0320102	AMTR A4C	7710110	AMTR	RANS	05616Q9	AMTR	ZUNI	05602VE	AMTRP IAX3	86502M1
AGUSTAA109	3930104	AMTR AA4	05637P8	AMTR	RICE	05601YQ	AMTR	ZUNI	05612WV	AMTRP IAX3	8660104
AGUSTAA109	0400102	AMTR ACROUT	0564309	AMTR	RS15	05647AL	AMTR	ZUNI	056125D	AMTRP IAX3	4700216
AGUSTAA109	0400106	AMTR AEROCA	0190931	AMTR	S11	05616XW	AMTR	ZUNI	0561388	AMTRP IAX3	05613G2
AGUSTAA109	0400108	AMTR AEROCAT	05616HK	AMTR	SCMIDT	0562542	AMTR	ZUNI	05612TF	AMTRP IAX3	05601F8
AGUSTAA109	0400113	AMTR AIRSRK	9570776	AMTR	SCPTR1	05613PE	AMTR	ZUNI	05601GX	AMTRP IAX3	0565383
AGUSTAA109	0400302	AMTR AN1	70401R2	AMTR	SDIA	0566182	AMTR	ZUNI	05613GU	AMTRP IAX3	0562154
AGUSTAA109	0144204	AMTR AOP	0881210	AMTR	SKYSCAT	05613HH	AMTR	ZUNI	05675EK	AMTRP IAX3	05647QT
AGUSTAA109	0144206	AMTR AVID	05613TN	AMTR	SNOOP2	05613DZ	AMTR	ZUNI	0564408	AMTRP IAX3	05612BB
AGUSTAA109	1850102	AMTR B10	0566605	AMTR	SPAD7	05608A7	AMTR	ZUNI	05613LX	AMTRP IAX3	056015T
AGUSTAA109	1850104	AMTR BIPE	05601ZE	AMTR	SPIRIT	0560830	AMTR	ZUNI	05663CK	AMTRP IAX3	05655YX
AGUSTAA109	1850106	AMTR BLAZER	056166W	AMTR	SPTBL	05655D1	AMTR	ZUNI	5621012	AMTRP IAX3	05613VG
AGUSTAA109	1850108	AMTR BORDOM	05616FU	AMTR	SR300	056160X	AMTR	ZUNI	0561328	AMTRP IAX3	05613YX

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 2 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
AMTRWRF4U	0566446	AYRES S2	0143006	BBAVIA7	21101MW	BEECH 18	1151013	BEECH 35	1151502
AMTRWTFDA	9790161	AYRES S2	0143010	BBAVIA7	21101N8	BEECH 18	1151014	BEECH 35	1151504
AMTRXPUBEEAA	05611B6	AYRES S2	0143012	BBAVIA7	21101NG	BEECH 18	1151016	BEECH 35	1151506
ANDRLMNDR	0561275	AYRES S2	0143022	BBAVIA7	21101NN	BEECH 18	1151018	BEECH 35	1151508
ANDGRN14	0740102	AYRES S2	0970100	BBAVIA7	21101NS	BEECH 18	1151019	BEECH 35	1151510
ARACFTSPORT	0840102	AYRES S2	0970101	BBAVIA7	21101P3	BEECH 18	1151020	BEECH 35	1151512
ARACFTSPORT	0840110	AYRES S2	0970105	BBAVIA7	21101PH	BEECH 18	1151021	BEECH 35	1151514
ARCRNEH37	8141617	AYRES S2	0970106	BBAVIA7	21101PK	BEECH 18	1151022	BEECH 35	1151516
ARCRNEH37	8142801	AYRES S2	0970107	BBAVIA7	21101PN	BEECH 18	1151023	BEECH 35	1151518
ARCTICS1A	1850202	AYRES S2	0970202	BBAVIA7	21101PT	BEECH 18	1151024	BEECH 35	1151520
ARCTICS1A	1850204	AYRES S2	0970210	BBAVIA7	21101PY	BEECH 18	1151026	BEECH 35	1151522
ARCTICS1A	1850206	AYRES S2	0970215	BBAVIA8	1220803	BEECH 18	1151040	BEECH 35	1151524
ARCTICS1A	1850208	AYRES S2	7630202	BBAVIA8	2110612	BEECH 18	1151042	BEECH 35	1151526
ARCTICS1A	1850210	AYRES S2	7630203	BCRAFTB	1110102	BEECH 18	1151044	BEECH 35	1151530
ARCTICS1A	1850212	AYRES S2	8380202	BEAGLE121	1120424	BEECH 1900	1151160	BEECH 35	1151532
ARCTICS1A	1850216	AYRES S2	8380204	BEAGLE121	1120425	BEECH 1900	1151161	BEECH 35	1151533
ARCTICS1B1	1850302	AYRES S2	8380206	BEECH 100	1152915	BEECH 1900D	1151162	BEECH 35	1151538
ARCTICS1B1	1850304	AYRES S2	8380302	BEECH 100	1152916	BEECH 200	1152920	BEECH 35	1151544
ARCTICS1B1	1850308	AYRES S2	8380306	BEECH 100	1152919	BEECH 200	1152922	BEECH 35	1151546
ARCTICS1B2	1850303	BAC 111	1480208	BEECH 17	1150504	BEECH 200	1152924	BEECH 35	1151548
AROCARAROCAR	0100102	BAC 111	1480268	BEECH 17	1150508	BEECH 200	1152926	BEECH 35	1151550
ARONCAL5	0191202	BAC 111	1480280	BEECH 17	1150512	BEECH 200	1152928	BEECH 36	1151602
ARONCAL5	0191204	BAC 111	1480283	BEECH 17	1150518	BEECH 200	1151214	BEECH 36	1151609
ARONCA58	0191002	BAG	1500217	BEECH 17	1150524	BEECH 23	1151216	BEECH 45	1152002
ARONCA58	0191006	BAG	1121223	BEECH 17	1150530	BEECH 23	1151202	BEECH 45	1152006
ARONCA58	0191008	BAG	1121224	BEECH 17	1150534	BEECH 23	1151208	BEECH 45	1152008
ARONCA58	0190100	BALWKSFIREFY	1050100	BEECH 17	1150538	BEECH 23	1151212	BEECH 45	1152010
ARONCA65	0190802	BALWKSFIREFY	1050101	BEECH 17	1150550	BEECH 23	1151215	BEECH 45	1152012
ARONCA65	0190902	BALWKSFIREFY	1050103	BEECH 17	1150554	BEECH 23	1151215	BEECH 45	1152013
ARONCA65	0190906	BALWKSFIREFY	1050104	BEECH 17	1150556	BEECH 23	1151216	BEECH 45	1152014
ARONCA65	0190908	BALWKSFIREFY	1050107	BEECH 17	1150558	BEECH 23	1151226	BEECH 45	1152002
ARONCA65	0190910	BALWKSFIREFY	1050109	BEECH 17	1150564	BEECH 23	1151240	BEECH 45	1152010
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ARONCA65	0190918	BALWKSFIREFY	10501A9	BEECH 18	1150204	BEECH 23	1151250	BEECH 45	1152013
ARONCA65	01901016	BALWKSFIREFY	1030104	BEECH 18	1150602	BEECH 23	1151252	BEECH 45	1152014
ARONCAC2	0190102	BARTLTLCL3	1050102	BEECH 18	1150702	BEECH 23	1151253	BEECH 50	1152502
ARONCAC2	0190104	BBAVIA11	0191102	BEECH 18	1150902	BEECH 23	1151254	BEECH 50	1152506
ARONCAC3	0190302	BBAVIA11	0191104	BEECH 18	1150904	BEECH 300	1152930	BEECH 50	1152510
ARONCAC3	0190304	BBAVIA11	0191106	BEECH 18	1150909	BEECH 33	1151402	BEECH 50	1152512
ARONCALB	0190702	BBAVIA11	0191108	BEECH 18	1150911	BEECH 33	1151404	BEECH 50	1152515
ARONCALB	0190604	BBAVIA11	0191112	BEECH 18	1150912	BEECH 33	1151406	BEECH 50	1152516
ARONCALC	0190606	BBAVIA402	2110204	BEECH 18	1150913	BEECH 33	1151408	BEECH 50	1152518
ARONCAM	0190504	BBAVIA7	2110102	BEECH 18	1151001	BEECH 33	1151410	BEECH 50	1152520
AROSTRX8	7487008	BBAVIA7	2110106	BEECH 18	1151004	BEECH 33	1151422	BEECH 50	1152522
AUGSBK630	05604NR	BBAVIA7	2110108	BEECH 18	1151006	BEECH 33	1151423	BEECH 50	1152524
AVIANWCLIPPR	0900108	BBAVIA7	2110116	BEECH 18	1151007	BEECH 33	1151424	BEECH 50	1152526
AVIANWALCON	0900102	BBAVIA7	2110120	BEECH 18	1151008	BEECH 33	1151425	BEECH 50	1152530
AVIANWAGMAGNUM	0900110	BBAVIA7	2110124	BEECH 18	1151010	BEECH 33	1151432	BEECH 50	1152532
AVIANWXYHVK	0900104	BBAVIA7	2110126	BEECH 18	1151011	BEECH 33	1151434	BEECH 50	1152534
AVIONSR2160	0960101	BBAVIA7	2110130	BEECH 18	1151012	BEECH 33	1151435	BEECH 50	1152536



## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 3 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
BEECH 55	1152702	BELL 206	1181511	BLANCA1413	1201006	BLANCA7	21101MA	BOEING720	1383810
BEECH 55	1152704	BELL 206	1181522	BLANCA1419	1220402	BLANCA7	21101ML	BOEING720	1383818
BEECH 55	1152706	BELL 206	1182107	BLANCA1419	1220404	BLANCA7	21101N2	BOEING720	1383822
BEECH 55	1152708	BELL 206	1182108	BLANCA1419	1220406	BLANCA7	21101N7	BOEING720	1383857
BEECH 55	1152729	BELL 209	1181902	BLANCA1419	1220408	BLANCA7	21101NB	BOEING720	1383861
BEECH 55	1152730	BELL 212	1181420	BLANCA1419	3080102	BLANCA7	21101NM	BOEING720	1383873
BEECH 55	1152732	BELL 214	1182100	BLANCA1419	3080104	BLANCA7	21101NX	BOEING727	1384002
BEECH 56	1152736	BELL 214	1182105	BLANCA1419	3080106	BLANCA7	21101PC	BOEING727	1384003
BEECH 56	1152738	BELL 214	1182106	BLANCA1419	3080108	BLANCA8	1220801	BOEING727	1384006
BEECH 58	1152740	BELL 222	1182122	BLANCA1419	3080112	BLANCAPACMKR	1200202	BOEING727	1384008
BEECH 58	1152744	BELL 222	1182123	BLANCA1419	3080114	BLANCAPACMKR	1200702	BOEING727	1384009
BEECH 58	1152746	BELL 222	1182124	BLANCA1419	3080116	BLANCA5KYRKT	1200402	BOEING727	138400H
BEECH 60	1153602	BELL 222	1182140	BLANCA1419	3080118	BLANCA5KYRKT	1200602	BOEING727	138400K
BEECH 60	1153604	BELL 222	1182148	BLANCA1419	3080122	ENORM BN2	1200602	BOEING727	1384012
BEECH 60	1153605	BELL 301	1182109	BLANCA1419	3080124	ENORM BN2	1520204	BOEING727	1384014
BEECH 65	1152802	BELL 412	1182202	BLANCA1419	3080126	ENORM BN2	1520205	BOEING727	1384017
BEECH 65	1152803	BELL 47	1180602	BLANCA1419	3080128	ENORM BN2	1520206	BOEING727	1384036
BEECH 65	1152805	BELL 47	1180604	BLANCA1419	4580808	ENORM BN2	1520207	BOEING727	1384063
BEECH 76	1153005	BELL 47	1180606	BLANCA149	1200802	ENORM BN2	1520209	BOEING727	1384074
BEECH 77	1153007	BELL 47	1180702	BLANCA149	1200804	ENORM BN2	1520210	BOEING727	1384075
BEECH 80	1152806	BELL 47	118084G	BLANCA17	1220432	ENORM BN2	1520215	BOEING727	1384077
BEECH 80	1152807	BELL 47	1181003	BLANCA17	1220433	ENORM BN2	1520220	BOEING727	1384078
BEECH 80	1152808	BELL 47	1181008	BLANCA17	1220434	ENORM BN2	1520221	BOEING727	1384079
BEECH 80	1152809	BELL 47	1181011	BLANCA17	1220435	ENORM BN2	1520226	BOEING727	138407E
BEECH 80	1152812	BELL 47	1181012	BLANCA17	1220436	ENORM BN2	1520227	BOEING727	138407G
BEECH 90	1152904	BELL 47	1181014	BLANCA17	1220437	ENORM BN2	1520302	BOEING727	138407R
BEECH 90	1152907	BELL 47	1181023	BLANCA51	1225051	ENORM BN2	1520350	BOEING727	138408D
BEECH 90	1152908	BELL 47	1181024	BLANCA7	1220438	ENORM BN2	7080221	BOEING727	138408S
BEECH 90	1152909	BELL 47	1181025	BLANCA7	1220460	ENORM BN2	7080227	BOEING727	1384100
BEECH 90	1152912	BELL 47	1181026	BLANCA7	1220501	ENORM BN2MK3	1520203	BOEING727	1384101
BEECH 90	1152913	BELL 47	1181028	BLANCA7	1220601	ENORM BN2MK3	1520208	BOEING737	1384412
BEECH 90	1152914	BELL 47	1181029	BLANCA7	1220701	BOARD XL1	2320104	BOEING737	1384453
BEECH 90	1152923	BELL 47	1181030	BLANCA7	2110104	BOEING100	1381902	BOEING737	1384457
BEECH 95	1153402	BELL 47	1181031	BLANCA7	2110110	BOEING107	1385005	BOEING737	138446R
BEECH 95	1153404	BELL 47	1181032	BLANCA7	2110112	BOEING107	1385007	BOEING737	1384473
BEECH 95	1153406	BELL 47	1181033	BLANCA7	2110114	BOEING107	9420604	BOEING737	1384480
BEECH 95	1153408	BELL 47	1181034	BLANCA7	2110136	BOEING234	1385049	BOEING737	138448C
BEECH 95	1153410	BELL 47	1181102	BLANCA7	2110140	BOEING234	1385064	BOEING737	138448D
BEECH 99	1153802	BELL 47	1181104	BLANCA7	2110144	BOEING247	1382402	BOEING737	138448G
BEECH 99	1154002	BELL 47	1181106	BLANCA7	2110148	BOEING307	1381102	BOEING737	138448K
BEECH 99	1154003	BELL 47	1181202	BLANCA7	2110150	BOEING707	138360T	BOEING737	138448V
BEECH 99	1154004	BELL 47	1181310	BLANCA7	2110154	BOEING707	138361G	BOEING737	138448W
BEECH 99	1154006	BELL P63	1181310	BLANCA7	2110158	BOEING707	138365B	BOEING737	138448Y
BELL 204	1181404	BELL P63	1180202	BLANCA7	2110160	BOEING707	138366B	BOEING737	1384494
BELL 204	1181405	BELL 204	1180204	BLANCA7	2110162	BOEING707	138366C	BOEING737	1384499
BELL 205	1181413	BIMONDCB1	2370152	BLANCA7	2110164	BOEING707	138367D	BOEING737	1384600
BELL 205	1181414	BLANCA11	0191110	BLANCA7	2110166	BOEING707	138367G	BOEING737	1384610
BELL 206	1181502	BLANCA1412	1200902	BLANCA7	2110168	BOEING707	138367J	BOEING747	1384853
BELL 206	1181506	BLANCA1413	1201002	BLANCA7	2110170	BOEING707	138367N	BOEING747	1384871
BELL 206	1181508	BLANCA1413	1201004	BLANCA7	2110172	BOEING707	138367S	BOEING747	1384873

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 4 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
BOEING747	1384881	BRAERODH125	4230170	CESSNA140	2071604	CESSNA177	2073708	CESSNA188	2073008		
BOEING75	1380102	BRASOVIS28	4490102	CESSNA150	2071802	CESSNA177	2073709	CESSNA188	2073010		
BOEING75	1380104	BRASOVIS28	4490103	CESSNA150	2071804	CESSNA180	2072602	CESSNA188	2073012		
BOEING75	1380105	BRASOVIS29	4490106	CESSNA150	2071806	CESSNA180	2072606	CESSNA190	2072902		
BOEING75	1380106	BRWSTRFLEET10	1462004	CESSNA150	2071808	CESSNA180	2072606	CESSNA195	2073102		
BOEING75	1380108	BRWSTRFLEET11	1461104	CESSNA150	2071810	CESSNA180	2072608	CESSNA195	2073106		
BOEING75	1380112	BRWSTRFLEET12	1461202	CESSNA150	2071812	CESSNA180	2072610	CESSNA195	2073108		
BOEING75	1380116	BRWSTRFLEET2	1461204	CESSNA150	2071814	CESSNA180	2072612	CESSNA195	2073110		
BOEING75	1380118	BRWSTRFLEET7	1461502	CESSNA150	2071816	CESSNA180	2072614	CESSNA195	2073112		
BOEING75	1380120	BRWSTRFLEET7	1461504	CESSNA150	2071818	CESSNA180	2072616	CESSNA205	2073202		
BOEING75	1380122	BRWSTRFLEET7	1461512	CESSNA150	2071820	CESSNA180	2072618	CESSNA205	2073204		
BOEING75	1380124	BRWSTRFLEET8	1461802	CESSNA150	2071822	CESSNA180	2072622	CESSNA206	2073302		
BOEING75	1380131	BRWSTRFLEET8	1461804	CESSNA150	2071824	CESSNA180	2072624	CESSNA206	2073304		
BOEING75	1380132	BRWSTRFLEET9	1461902	CESSNA150	2071826	CESSNA180	2072702	CESSNA206	2073306		
BOEING75	1380134	BUHL CA3	1650302	CESSNA150	2071828	CESSNA182	2072704	CESSNA206	2073308		
BOEING75	1380136	BUHL LA1	1651002	CESSNA150	2071830	CESSNA182	2072706	CESSNA206	2073309		
BOEING75	1380137	BUHL LA1	1590104	CESSNA150	2071831	CESSNA182	2072708	CESSNA206	2073310		
BOEING75	1380138	BOKER 131	1590114	CESSNA150	2071835	CESSNA182	2072710	CESSNA206	2073311		
BOEING75	1380140	BOKER 133	1590326	CESSNA150	2071836	CESSNA182	2072712	CESSNA206	2073312		
BOEING75	1380142	BURNS BA42	05601D3	CESSNA170	2072302	CESSNA182	2072714	CESSNA206	2073313		
BOEING75	1380144	BUSHMS2000	0350406	CESSNA170	2072304	CESSNA182	2072716	CESSNA206	2073316		
BOEING75	1380146	BUTLERBHWK	1720102	CESSNA170	2072306	CESSNA182	2072718	CESSNA206	2073318		
BOEING75	1380148	CAMAJR480	1890102	CESSNA172	2072202	CESSNA182	2072722	CESSNA206	2073322		
BOEING75	1380150	CAMRONA210	1880215	CESSNA172	2072402	CESSNA182	2072724	CESSNA206	2073324		
BOEING75	1380152	CAMROND50	1880114	CESSNA172	2072404	CESSNA182	2072726	CESSNA206	2073332		
BOEING75	1380154	CAMRONDELO	1880260	CESSNA172	2072406	CESSNA182	2072728	CESSNA206	2073333		
BOEING757	1384956	CAMRONDELO	1880245	CESSNA172	2072408	CESSNA182	2072730	CESSNA206	2073334		
BOEING757	1384969	CAMRONDELO	1880104	CESSNA172	2072410	CESSNA182	2072731	CESSNA206	2073338		
BOEINGB17	1380202	CAMRONDELO	1880106	CESSNA172	2072412	CESSNA182	2072732	CESSNA206	2073340		
BOEINGB17	1380204	CAMRONDELO	1880108	CESSNA172	2072413	CESSNA182	2072734	CESSNA206	2073342		
BOEINGC97	1381604	CAMRONDELO	1880110	CESSNA172	2072414	CESSNA182	2072735	CESSNA206	2073344		
BOEINGC97	1381605	CAMRONDELO	1880112	CESSNA172	2072418	CESSNA182	2072736	CESSNA206	2073346		
BOEINGC97	1381611	CAMRONDELO	1880113	CESSNA172	2072420	CESSNA182	2075802	CESSNA206	2073348		
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BOEINGH21	9420106	CAMRONDELO	1880201	CESSNA172	2072426	CESSNA182	2075816	CESSNA206	2073353		
BOEINGH21	1380810	CAMRONDELO	1880202	CESSNA172	2072429	CESSNA185	2072802	CESSNA206	2073356		
BOEINGH47	4090202	CAMRONDELO	1880204	CESSNA172	2072430	CESSNA185	2072804	CESSNA206	2073357		
BOLKMS105	5626005	CAMRONDELO	1880205	CESSNA172	2072431	CESSNA185	2072806	CESSNA207	2073602		
BOLKMS105	5626006	CAMRONDELO	1880225	CESSNA172	2072432	CESSNA185	2072808	CESSNA207	2073604		
BOLKMS105	5626008	CAMRONN120	1880228	CESSNA172	2072434	CESSNA185	2072812	CESSNA207	2073612		
BOLKMS105	5626020	CAMRAM200	1981008	CESSNA172	2072436	CESSNA185	2072816	CESSNA207	2073614		
BOLKMS117	5626010	CASA C212	2410200	CESSNA172	2072437	CESSNA185	2072818	CESSNA208	2073701		
BOLKMS117	5626012	CASA C212	2410202	CESSNA172	2072438	CESSNA185	2072820	CESSNA208	2073702		
BOLKMS117	5626015	CASA C212	2410204	CESSNA175	2072502	CESSNA185	2072821	CESSNA208	2073703		
BOLKMS117	5626017	CASA C212	2410302	CESSNA175	2072504	CESSNA188	2073002	CESSNA210	2073402		
BOLKMS209	5626007	CASA C212	2410304	CESSNA175	2072506	CESSNA188	2073004	CESSNA210	2073404		
BOLKOWJR	1400202	CENTRL26	0180604	CESSNA175	2072508	CESSNA188	2073006	CESSNA210	2073406		
BRAERODH125	1500205	CESSNA120	2071402	CESSNA177	2073704	CESSNA188	2073008	CESSNA210	2073408		
BRAERODH125	1500285	CESSNA140	2071602	CESSNA177	2073706	CESSNA188	2073007	CESSNA210	2073410		



## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 5 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
CESSNA210	2073412	CESSNA310	2074228	CESSNA411	2075904	COLT 77A	2300102	CURTISTRVAIR	2621108
CESSNA210	2073414	CESSNA310	2074230	CESSNA414	2075907	COMETH175	2370402	CURTISTRVAIR	2621204
CESSNA210	2073416	CESSNA310	2074234	CESSNA414	2075908	COMETH180	2370502	CURTISTRVAIR	2621302
CESSNA210	2073418	CESSNA310	2074238	CESSNA421	2076010	COMETH180	2370504	CURTISTRVAIR	2621304
CESSNA210	2073422	CESSNA310	2074240	CESSNA421	2076012	COMETH185	2370602	CURTISTRVAIR	2621308
CESSNA210	2073430	CESSNA310	2074242	CESSNA421	2076014	COMETH185	2370604	CURTISTRVAIR	2621402
CESSNA210	2073432	CESSNA310	2074244	CESSNA421	2076016	COMETH185	2370608	CURTISTRVAIR	2621404
CESSNA210	2073436	CESSNA310	2074245	CESSNA425	2076018	COMETH190	2370704	CURTISTRVAIR	2621506
CESSNA210	2073438	CESSNA310	2074246	CESSNA441	2076020	COMETH7000	2371206	CURTISTRVAIR	2621508
CESSNA210	2073439	CESSNA320	2074502	CESSNA500	2076602	COMETH9000	2371422	CURTISTRVAIR	2621602
CESSNA210	2073440	CESSNA320	2074504	CESSNA500	2076604	CONAERC1	5110102	CURTISTRVAIR	2621604
CESSNA210	2073446	CESSNA320	2074506	CESSNA500	2076606	CONAERC2	5110202	CURTISTRVAIR	2621606
CESSNA210	2073447	CESSNA320	2074508	CESSNA500	2076607	CONAERLA4	2400102	CURTISTRVAIR	2621702
CESSNA210	2073448	CESSNA320	2074510	CESSNA500	2076750	CONAERLA4	2400108	CURTISTRVAIR	2621704
CESSNA210	2073449	CESSNA320	2074512	CESSNA501	2076603	CONAERLA4	5110302	CURTISTRVAIR	2621802
CESSNA210	2073450	CESSNA320	2074514	CESSNA501	2076605	CONAERLA4	5110304	CURTISTRVAIR	2621804
CESSNA210	2073451	CESSNA320	2074516	CESSNA650	2076802	CONAERLA4	5110306	CURTISTRVAIR	2621806
CESSNA210	2073453	CESSNA325	2074802	CESSNA6W	2070502	CONAERLA4	5110310	CURTISTRVAIR	2621808
CESSNA210	2073454	CESSNA335	2075601	CESSNA7303	2073803	CONAERLA4	5110312	CURTISTRVAIR	2621810
CESSNA210	2073455	CESSNA336	2075602	CESSNA737	2074321	CONAERLA4	5110320	CURTISTRVAIR	2621814
CESSNA210	2073456	CESSNA337	2075702	CESSNA750	2071302	CORCNRGLIDER	2480122	CURTISTRVAIR	2621818
CESSNA210	2073459	CESSNA337	2075704	CESSNA750	2071306	CORCNRGLIDER	2480124	CURTISTRVAIR	2621820
CESSNA303	2073820	CESSNA337	2075706	CESSNA750	2071308	CORCNRGLIDER	2480126	CURTISTRVAIR	2621822
CESSNA305	2073902	CESSNA337	2075707	CESSNA777	2070702	CORCNRGLIDER	2580104	CURTISTRVAIR	2621824
CESSNA305	2074001	CESSNA337	2075712	CESSNA777	2070802	CURTIS22	2620202	CURTISTRVAIR	2621826
CESSNA305	2074002	CESSNA337	2075714	CESSNA777	2070902	CURTISC46	2622601	CURTISTRVAIR	2621830
CESSNA305	2074003	CESSNA337	2075717	CESSNA777	2071002	CURTISC46	2622602	CURTISTRVAIR	2621902
CESSNA305	2074004	CESSNA337	2075719	CESSNA777	2071102	CURTISC46	2622604	CURTISTRVAIR	2621904
CESSNA305	2074005	CESSNA337	2075721	CHILD S1	0110100	CURTISC46	2622608	CURTISTRVAIR	2621908
CESSNA305	2074006	CESSNA337	2075723	CHILD S1	0110301	CURTISC46	2622610	CVAC 22	2423302
CESSNA305	2074008	CESSNA337	2075724	CHILD S1	0110303	CURTISC46	2622701	CVAC 22	2423304
CESSNA305	2074012	CESSNA337	2075725	CHILD S2	0110201	CURTISC46	2622702	CVAC 240	2422601
CESSNA305	2074014	CESSNA337	2075726	CHILD S2	0110202	CURTISC46	2622708	CVAC 240	2422602
CESSNA305	2074016	CESSNA337	2075727	CHILD S2	0110304	CURTISFLING	2620302	CVAC 240	2422608
CESSNA305	2074018	CESSNA337	2075730	CHRIS HUSKY	221020X	CURTISFLING	2620604	CVAC 240	2422610
CESSNA305	2074028	CESSNA337	2075731	CLARK 1000	2230102	CURTISJUR	2620502	CVAC 240	2422612
CESSNA305	2074030	CESSNA337	2075732	CLARK 12	2230302	CURTISJUR	2622002	CVAC 240	2422628
CESSNA310	2074202	CESSNA337	2075733	CNDAR601.2A	1900303	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074204	CESSNA340	2076405	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074206	CESSNA340	2076405	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074208	CESSNA340	2076405	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074210	CESSNA401	207590C	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074212	CESSNA401	207590C	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074214	CESSNA401	207590C	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074216	CESSNA402	207590K	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074218	CESSNA402	207590M	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074220	CESSNA402	207590P	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074222	CESSNA402	207590R	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074224	CESSNA404	2075901	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
CESSNA310	2074226	CESSNA411	2075902	CNDAR601.2A	1900302	CURTIS052	2622202	CVAC 240	2422628
				COLT 240A	2300180	CURTISTRVAIR	2621104		

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 6 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
CVAC 440	2422902	DHAV DHC2	2800102	DUG DC3	3021461	DUG DC9	302207P	FOMOCO5AT	3590204
CVAC 440	2422904	DHAV DHC2	2800103	DUG DC3	3021462	DUG DC9	3022081	FRANK 90	3680102
CVAC 440	2423004	DHAV DHC2	2800104	DUG DC3	3021466	DUG DC9	3022082	FRCHLD21	3371302
CVAC B24	2422502	DHAV DHC2	2800105	DUG DC3	3021467	DUG DOLPHN	3020104	FRCHLD22	3370104
CVAC BT13	2420202	DHAV DHC2	2800106	DUG DC3	3021471	DRIGSSSKYLK3	3160502	FRCHLD22	3370108
CVAC BT13	2420204	DHAV DHC2	2800107	DUG DC3	3021472	DURMOLF46	3200502	FRCHLD22	3370110
CVAC BT13	2420206	DHAV DHC2	2800108	DUG DC3	3021474	EAGLE DW	3230203	FRCHLD22	3370112
CVAC BT13	2420208	DHAV DHC2	2800109	DUG DC3	3021478	EAGLEBAX7	3240107	FRCHLD22	3370114
CVAC BT13	2420222	DHAV DHC2	2801830	DUG DC3	3021481	EAGLEBC7	3240207	FRCHLD22	3370116
CVAC BT13	2420224	DHAV DHC3	2800202	DUG DC4	3021502	EIRVON20	5760102	FRCHLD24	3370202
CVAC BT13	2420226	DHAV DHC4	2800302	DUG DC4	3021506	EIRVON20	5760104	FRCHLD24	3370204
CVAC BT13	2420228	DHAV DHC4	2800304	DUG DC4	3021510	EIRVON20	5760202	FRCHLD24	3370206
CVAC BT13	2420230	DHAV DHC6	2802606	DUG DC4	3021512	EIRVON20	5760204	FRCHLD24	3370208
CVAC BT15	2420302	DHAV DHC60	2800816	DUG DC4	3021516	EIRVON20	5760206	FRCHLD24	3370212
CVAC BT15	2420312	DHAV DHC7	2802708	DUG DC4	3021518	EIRVON20	5760207	FRCHLD24	3370216
CVAC L13	2420702	DHAV DHC7	2802710	DUG DC4	3021522	EMAIR MA1	3280103	FRCHLD24	3370220
CVAC L13	2420704	DHAV DHC8	2809002	DUG DC4	3021524	EMAIR MA1	6070102	FRCHLD24	3370302
CVAC L13	2420706	DHAV DHC8	2809003	DUG DC4	3021528	EMB 110	3260122	FRCHLD24	3370402
CVAC LB30	2420804	DHAVXDH82	2801002	DUG DC4	3021530	EMB 110	3260124	FRCHLD24	3370408
CVAC PAY	2421102	DHAVXDH89	2801015	DUG DC4	3021534	EMB 120	3260201	FRCHLD24	3370414
CVAC PBY5	2421208	DORNER800	2970102	DUG DC4	3021536	ENSTRMF28	3300404	FRCHLD24	3370418
CVAC PBY5	2421218	DORNER133	2990006	DUG DC6	3021702	ENSTRMF28	3300406	FRCHLD24	3370502
CVAC PBY5	2421230	DORNERDO228	2992020	DUG DC6	3021706	ENSTRMF28	3300407	FRCHLD24	3370508
CVAC PBY6	2421302	DORNERDO228	2992030	DUG DC6	3021710	ENSTRMF28	3300412	FRCHLD24	3370514
CVAC STC580	2422801	DORNERDO228	2995000	DUG DC6	3021712	ENSTRMF28	3300430	FRCHLD24	3370516
CVAC STC580	2422804	DORNERDO27	2990704	DUG DC7	3021802	ENSTRMF28	3300502	FRCHLD24	3370520
CVAC STC580	2422806	DORNERDO27	2990721	DUG DC7	3021804	ENSTRMF28	3300505	FRCHLD24	3370602
CVAC STC580	2423001	DORNERDO28	2990102	DUG DC7	3021806	ENSTRMF28	3300506	FRCHLD24	3370608
CVAC STC580	2423002	DORNERDO28	2991404	DUG DC8	3021906	ENSTRMF28	3300510	FRCHLD24	3370614
CVAC STC600	2422660	DUG A20	3020302	DUG DC8	3021908	ENSTRMF28	3300550	FRCHLD24	3370620
CVAC STC640	2422814	DUG A20	3020306	DUG DC8	3021920	ENSTRMF28	3300550	FRCHLD24	3370620
DART G	2700102	DUG A24	3020406	DUG DC8	3021920	ENTWICPHEBUS	1403014	FRCHLD24	3370626
DART G	2700104	DUG A26	3020504	DUG DC8	3021924	ENTWICPHEBUS	3321206	FRCHLD24	3370628
DART G	2700106	DUG A26	3020506	DUG DC8	3021927	ENTWICPHEBUS	3321210	FRCHLD71	3370802
DART G	2700108	DUG B23	3020702	DUG DC8	3021928	EVNAIR4500	3340106	FRCHLD119	3372102
DAVIS D1	2740504	DUG B26	3020514	DUG DC8	3021928M	EXPER P2	056361T	FRCHLD119	3372106
DAVIS D1	2740506	DUG DC10	3022110	DUG DC8	3021952	FARZWKDIAMAT	3550802	FRCHLD119	3372108
DAVIS D1	2740508	DUG DC10	3022110	DUG DC8	3021952	FARZWKDIAMAT	3550806	FRCHLD123	3372202
DAVIS V3	2743002	DUG DC10	3023501	DUG DC8	3021970	FCWLF44J	3540102	FRCHLD82	3372002
DHAV DH112	2800421	DUG DC2	3021302	DUG DC8	302197B	FDA/C C3605	3420100	FRCHLD82	3372004
DHAV DH82	2801000	DUG DC3	3021401	DUG DC8	302199B	FLEET 16B	3480502	FRCHLDF27	3373002
DHAV DH87	2801013	DUG DC3	3021404	DUG DC8	302199F	FLTCR24	3530204	FRCHLDF27	3373004
DHAV DHC1	2801702	DUG DC3	3021424	DUG DC9	3022034	FLYGSTWIEHE	3802219	FRCHLDF27	3373006
DHAV DHC1	2801704	DUG DC3	3021433	DUG DC9	3022036	FOKKERF27	4990614	FRCHLDF27	3373008
DHAV DHC1	2801712	DUG DC3	3021433	DUG DC9	302203H	FOKKERF27	4990617	FRCHLDF27	3373016
DHAV DHC1	2801714	DUG DC3	3021440	DUG DC9	302203K	FOKKERF27	4990620	FRCHLDF45	3371202
DHAV DHC1	2801716	DUG DC3	3021454	DUG DC9	3022051	FOKKERF27	4990629	FRCHLDFC2	3371102
DHAV DHC1	2801736	DUG DC3	3021457	DUG DC9	3022065	FOKKERF28	4990810	FRCHLDFH1100	4361415
DHAV DHC1	2801738	DUG DC3	3021458	DUG DC9	3022066	FOKKERF28	4990810	FRCHLDFH227	3373042
DHAV DHC1	2801739	DUG DC3	3021460	DUG DC9	302206A	FOMOCO4AT	3590102	FRCHLDFH227	3373046
DHAV DHC1	2801739	DUG DC3	3021460	DUG DC9	302206C	FOMOCO5AT	3590202	FRCHLDFH227	3373050







## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 9 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
MODFD47	1181063	MTSBSIMU2	5780413	NAMER T6	6400420	NORMST35	6480126	PILATSB4	7090104
MODFD47	1181065	MTSBSIMU2	5780414	NAMER T6	6400422	NORMST40	6480110	PILATSPC6	3375014
MODFD47	1181066	MTSBSIMU300	5780602	NAMER T6	6400423	NORMST50	6480111	PILATSPC6	7090102
MODFD47	1181067	MTSBSIMU300	5781300	NAMER T6	6400424	NORMST65	6480116	PILATSPC6	7090114
MODFD47	1181068	MOLTECD16	9230602	NAMER T6	6400426	NORMST65	6480118	PILATSPC6	7090122
MODFD47	1181071	MOLTECD16	9230604	NAMER T6	6400430	NORMST65	6480122	PILATSPC6T	3375011
MODFD47	1181074	MOLTECD16	9230606	NAMER T6	6400431	NORMST65	6480124	PILATSPC6T	7090202
MODFD47	1181306	MOLTECD16	9230608	NAMER T6	6400432	NORMST65	7680120	PILATSPC6T	7090210
MODFD47	1181579	MOLTECD16	9230610	NAMER T6	6400434	NORMST65	7680120	PILATSPC6T	7090214
MODFDUH12	4360601	MOLTECD16	9230612	NAMER T6	6400436	OBERRNMG23SL	3801049	PILATSPC6T	7090401
MODFDUH12	4360701	NAMER A36	6400102	NAMER T6	6400441	ORLHELH19	8141608	PILATSPC7	7090401
MODFDUH12	4360702	NAMER B25	6400702	NAMER T6	6400442	ORLHELH19	8141609	PINAIRSUPERV	1100102
MODFDUH12	4360704	NAMER B25	6400704	NAMER T6	6400442	ORLHELH19	8141610	PIPER 600	7106001
MODFDUH12	4360801	NAMER B25	6400705	NARDI FN333	6080102	ORLHELH19	8141612	PIPER 600	7106010
MODFDUH12	4360810	NAMER B25	6400708	NATBAL752	6113310	ORLHELH19	8141614	PIPER 600	7106014
MODFDUH12	4361101	NAMER B25	6400710	NATBAL752	6113317	ORLHELH19	8141616	PIPER 600	7106014
MODFDUH12	4361301	NAMER B25	6400712	NATBAL752	6113320	ORLHELH19	8141618	PIPER 600	7106015
MODFDUH12	4361501	NAMER B25	6400714	NATBAL752	6113320	ORLHELH19	814161G	PIPER 600	7106023
MOONEYM20	5870202	NAMER B25	6400718	NAVAL N3N	6120202	ORLHELH19	814161J	PIPER E2	7100302
MOONEYM20	5870204	NAMER F51	6402301	NAVIONNAVION	6150106	ORLHELH19	8141818	PIPER F2	7100304
MOONEYM20	5870206	NAMER F51	6402302	NAVIONNAVION	6150108	OTHEXMLP1ST	8140102	PIPER J2	7100402
MOONEYM20	5870208	NAMER F51	6402303	NAVIONNAVION	6150110	OTHEXMLP1ST	8140304	PIPER J3	7100501
MOONEYM20	5870210	NAMER F51	6402304	NAVIONNAVION	6150118	OTHEXMLTUB	4470904	PIPER J3	7100502
MOONEYM20	5870212	NAMER F51	6402306	NAVIONNAVION	6150132	OTHEXMLTUB	4470905	PIPER J3	7100506
MOONEYM20	5870214	NAMER F51	6402307	NAVIONNAVION	6150134	OTHEXMLTUB	4800708	PIPER J3	7100508
MOONEYM20	5870219	NAMER F51	6402308	NAVIONNAVION	6150136	OTHEXMLTUB	4800803	PIPER J3	7100510
MOONEYM20	5870220	NAMER F51	6402309	NAVIONNAVION	6150140	PALMERCLIPPR	9570785	PIPER J3	7100511
MOONEYM20	5870221	NAMER F82	6401522	NAVIONNAVION	6150142	PARKS PIT	6770102	PIPER J3	7100512
MOONEYM20	5870222	NAMER F86	6401714	NAVIONNAVION	6150148	PARTMTCABAIR	6750102	PIPER J3	7100514
MOONEYM20	5870308	NAMER NA260	6400452	NAVIONNAVION	6150160	PARTENP66	6780101	PIPER J3	7100516
MOONEYM20	5870312	NAMER NA260	6402502	NAVIONNAVION	6150162	PARTENP68	6780105	PIPER J3	7100518
MOONEYM20	5870314	NAMER NA260	6402504	NAVIONNAVION	6150166	PARTENP68	6780106	PIPER J3	7100519
MOONEYM20	5870601	NAMER NA260	6402505	NAVIONNAVION	6150170	PASPEDW1	6790102	PIPER J3	7100520
MOONEYM20	5870605	NAMER NA260	6402506	NAVIONNAVION	6150172	PDMLRY15	5740102	PIPER J3	7100522
MOONEYM20	5870602	NAMER O47	6402202	NAVIONNAVION	6150174	PECOCFJC	4160204	PIPER J3	7100526
MORISY2000	5940102	NAMER P64	6402408	NAVIONNAVION	6150178	PERTH BIRD	6840122	PIPER J3	7100528
MOTH 60	6000102	NAMER T6	1922828	NELSONBB1	6200102	PERTH BIRD	6840126	PIPER J3	710052T
MORHTIF260	8121206	NAMER T6	6400402	NICHEZ8G	6290202	PERTH BIRD	6840132	PIPER J3	7100532
MORHTIF260	3121207	NAMER T6	6400404	NIHON YS11	6310406	PESNTHLO	6880102	PIPER J3	7100536
MORHTIS205	3120412	NAMER T6	6400405	NIHON YS11	6310416	PIAGIOP136	3540106	PIPER J3	7100542
MTSBSIMU2	5780404	NAMER T6	6400406	NOORDNCC64	6330204	PIAGIOP136	6960104	PIPER J3	7100546
MTSBSIMU2	5780405	NAMER T6	6400407	NORD 1101	6380108	PIAGIOP180	6960204	PIPER J3	7100550
MTSBSIMU2	5780406	NAMER T6	6400410	NORD 3202	6383202	PIASEHUP	6980302	PIPER J3	7100552
MTSBSIMU2	5780407	NAMER T6	6400412	NORD SV4	6383006	PIASEHUP	6980320	PIPER J3	7101102
MTSBSIMU2	5780408	NAMER T6	6400414	NORD SV4	8470102	PICARDA5	7001216	PIPER J4	7100602
MTSBSIMU2	5780409	NAMER T6	6400415	NORTRPF61	6450402	PICARDA5	7001218	PIPER J4	7100604
MTSBSIMU2	5780410	NAMER T6	6400417	NORTRPT38	6458005	PIGMANREARWN	7070104	PIPER J4	7100605
MTSBSIMU2	5780411	NAMER T6	6400418	NORMST35	6480102	PIGMANREARWN	7070302	PIPER J4	7100606
MTSBSIMU2	5780412	NAMER T6	6400419	NORMST35	6480104	PIGMANREARWN	7070308	PIPER J4	7100608
		NAMER T6		NORMST35	6480108	PILATSB4	7090103	PIPER J4	7100610

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 10 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
PIPER J4	7100614	PIPER PA23	7102303	PIPER PA32	7103211	REIMS 150	7530134	SCBFLGSF25	3801325
PIPER J5	7100202	PIPER PA23	7102304	PIPER PA32	7103212	REIMS 172	7530136	SCBFLGSF27	380135V
PIPER J5	7100702	PIPER PA23	7102305	PIPER PA32	7103213	REIMS 172	7530139	SCBFLGSF28	380135X
PIPER J5	7100706	PIPER PA23	7102306	PIPER PA32	7103214	REIMS 172	7530203	SCBFLGSF34	3801351
PIPER J5	7100708	PIPER PA23	7102308	PIPER PA32	7103215	REIMS 172	7530204	SCBFLGSF34	3801351
PIPER J5	7100712	PIPER PA23	7102309	PIPER PA32	7103216	REIMS 172	7530206	SCBFLGSF34	3801381
PIPER L14	7100902	PIPER PA23	7102310	PIPER PA32	7103218	REIMS 172	7530207	SCHEMPDISCUS	38019VN
PIPER PA12	7101202	PIPER PA24	7102402	PIPER PA32	7103220	REIMS 172	7530209	SCHEMPDISCUS	38019VP
PIPER PA12	7101204	PIPER PA24	7102403	PIPER PA32	7103222	REIMS 172	7530210	SCHLER13	38015GS
PIPER PA14	7101402	PIPER PA24	7102404	PIPER PA34	7103405	REIMS 337	7535726	SCHLERASK14	38015GW
PIPER PA15	7101502	PIPER PA24	7102406	PIPER PA34	7103406	REIMS 337	7570405	SCHLERASK21	38015GY
PIPER PA16	7101602	PIPER PA24	7102408	PIPER PA34	7103420	RHNFLLURW3	7600504	SCHLERASW12	38015HR
PIPER PA17	7101702	PIPER PA24	7102409	PIPER PA36	7103610	RHNFLLURW3	7600504	SCHLERASW15	38015H2
PIPER PA18	7101802	PIPER PA25	7102502	PIPER PA36	7103612	RHNFLLURW3	7630410	SCHLERASW15	38015H2
PIPER PA18	7101804	PIPER PA25	7102503	PIPER PA36	7103620	RHNFLLURW3	7630410	SCHLERASW17	3801507
PIPER PA18	7101806	PIPER PA25	7102504	PIPER PA36	7103620	RHNFLLURW3	6402608	SCHLERASW19	3801505
PIPER PA18	7101808	PIPER PA25	7102508	PIPER PA42	7104202	RHNFLLURW3	6402612	SCHLERASW19	3801508
PIPER PA18	7101809	PIPER PA28	7102802	PIPER PA42	7104202	RHNFLLURW3	6402614	SCHLERASW20	3801503
PIPER PA18	7101812	PIPER PA28	7102803	PIPER PA42	7104225	RHNFLLURW3	6402618	SCHLERASW20	3801506
PIPER PA18	7101813	PIPER PA28	7102804	PIPER PA44	7104402	RHNFLLURW3	7630101	SCHLERII	3801581
PIPER PA18	7101814	PIPER PA28	7102805	PIPER PA44	7104404	RHNFLLURW3	7630104	SCHLERK	3801509
PIPER PA18	7101815	PIPER PA28	7102806	PIPER PA46	7104605	RHNFLLURW3	7630106	SCHLERK	3801551
PIPER PA18	7101816	PIPER PA28	7102807	PIPER PA46	7104605	RHNFLLURW3	7630107	SCHLERK	3801559
PIPER PA18	7101818	PIPER PA28	7102808	PIPER TG8	7100102	RHNFLLURW3	7630108	SCHLERK8	3801563
PIPER PA18	7101820	PIPER PA28	7102809	PIPER TG8	7100102	RHNFLLURW3	7640102	SCHLERK8	3801567
PIPER PA18	7101822	PIPER PA28	7102810	PIPER TG8	7100102	RHNFLLURW3	7640104	SCHLERK8	380157K
PIPER PA18	7101824	PIPER PA28	7102811	PIPER TG8	7100102	RHNFLLURW3	7640110	SCHLERK8	38019VL
PIPER PA18	7101826	PIPER PA28	7102812	PIPER TG8	7100102	RHNFLLURW3	7640115	SCHLERK8	3801528
PIPER PA18	7101828	PIPER PA28	7102813	PIPER TG8	7100102	RHNFLLURW3	7640120	SCHLERK8	3801530
PIPER PA18	7101832	PIPER PA28	7102815	PIPER TG8	7100102	RHNFLLURW3	7640128	SCHLERK8	3801535
PIPER PA18	7101834	PIPER PA28	7102816	PIPER TG8	7100102	RHNFLLURW3	7640131	SCHLERK8	3801537
PIPER PA18	7101836	PIPER PA28	7102817	PIPER TG8	7100102	RHNFLLURW3	7640134	SCHLERK8	3801540
PIPER PA18	7101837	PIPER PA28	7102818	PIPER TG8	7100102	RHNFLLURW3	7640135	SCHLERK8	3801542
PIPER PA18	7101838	PIPER PA28	7102819	PIPER TG8	7100102	RHNFLLURW3	7640136	SCHLERK8	3801545
PIPER PA18	7101902	PIPER PA28	7102830	PIPER TG8	7100102	RHNFLLURW3	7640137	SCHLERK8	3801554
PIPER PA18	7101904	PIPER PA30	7103002	PIPER TG8	7100102	RHNFLLURW3	7640138	SCHLERK8	3801550
PIPER PA20	7102002	PIPER PA30	7103002	PIPER TG8	7100102	RHNFLLURW3	7640139	SCHLERK8	0560221
PIPER PA20	7102004	PIPER PA31	7103102	PIPER TG8	7100102	RHNFLLURW3	7640140	SCHLERK8	0560221
PIPER PA20	7102006	PIPER PA31	7103103	PIPER TG8	7100102	RHNFLLURW3	7640141	SCHLERK8	3952704
PIPER PA20	7102010	PIPER PA31	7103105	PIPER TG8	7100102	RHNFLLURW3	7640142	SCHLERK8	8050102
PIPER PA20	7102012	PIPER PA31	7103110	PIPER TG8	7100102	RHNFLLURW3	7640143	SCHLERK8	8050104
PIPER PA22	7102202	PIPER PA31	7103111	PIPER TG8	7100102	RHNFLLURW3	7640144	SCHLERK8	8050106
PIPER PA22	7102204	PIPER PA31	7103120	PIPER TG8	7100102	RHNFLLURW3	7640145	SCHLERK8	8050108
PIPER PA22	7102206	PIPER PA31T	7103124	PIPER TG8	7100102	RHNFLLURW3	7640146	SCHLERK8	8050110
PIPER PA22	7102208	PIPER PA31T	7103126	PIPER TG8	7100102	RHNFLLURW3	7640147	SCHLERK8	8050112
PIPER PA22	7102210	PIPER PA31T	7103127	PIPER TG8	7100102	RHNFLLURW3	7640148	SCHLERK8	8050114
PIPER PA22	7102212	PIPER PA31T	7103128	PIPER TG8	7100102	RHNFLLURW3	7640149	SCHLERK8	8050116
PIPER PA22	7102214	PIPER PA32	7103206	PIPER TG8	7100102	RHNFLLURW3	7640150	SCHLERK8	8050118
PIPER PA22	7102216	PIPER PA32	7103207	PIPER TG8	7100102	RHNFLLURW3	7640151	SCHLERK8	8050120
PIPER PA23	7102302	PIPER PA32	7103209	PIPER TG8	7100102	RHNFLLURW3	7640152	SCHLERK8	8050122
PIPER PA23	7102302	PIPER PA32	7103209	PIPER TG8	7100102	RHNFLLURW3	7640153	SCHLERK8	8050124
PIPER PA23	7102302	PIPER PA32	7103209	PIPER TG8	7100102	RHNFLLURW3	7640154	SCHLERK8	8050126

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 11 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
SWZERSG1	8050147	SKRSKYS58T	8141803	SNIAS SA318	8680506	STNSON10	8632002	STOLAMRC3	3080202		
SWZERSG1	8050148	SKRSKYS58T	8141805	SNIAS SA318	8680508	STNSON10	8632004	STOLAMRC3	3080204		
SWZERSG1	8050149	SKRSKYS58T	8141807	SNIAS SA318	8680511	STNSON10	8632102	STOLAMRC3	3080206		
SWZERSG1	8050151	SKRSKYS58T	8141840	SNIAS SA318	8680516	STNSON10	8632104	STRMAN3	8560202		
SWZERSG1	8050153	SKRSKYS58T	8141842	SNIAS SA341	8680610	STNSON10	8632104	STRMAN3	8560208		
SWZERSG1	8050502	SKRSKYS58T	8141844	SNIAS SE313	8680502	STNSONA	8630901	STRMAN4	8560302		
SWZERSG2	8050202	SKRSKYS61	8141826	SOCATAMS880	5910304	STNSONJR	8630402	STRMAN4	8560306		
SWZERSG2	8050206	SKRSKYS61	8142101	SOCATAMS893	8402838	STNSONJR	8630404	STRMAN6	8560402		
SWZERSG2	8050210	SKRSKYS61	8142102	SOCATAMS894	8402842	STNSONJR	8630406	SUD CML70	3650101		
SWZERSG2	8050602	SKRSKYS61	8142103	SOCATARSLLYE	8400125	STNSONL1	8630102	SUD GY80	8681006		
SWZERSG2	8050604	SKRSKYS61	8142104	SOCATARSLLYE	8400131	STNSONL1	8630114	SUD SE210	8680206		
SWZERSG2	8050608	SKRSKYS61	8142107	SOCATATB10	8680696	STNSONL5	8630202	SUPAC 14	8730402		
SWZERSG2	8050610	SKRSKYS61	814210C	SOCATATB20	8680695	STNSONL5	8630204	SUPAC 14	8730404		
SWZERSG2	8050612	SKRSKYS62	8142202	SOCATATB20	8680697	STNSONL5	8630206	SUPAC LA	8730202		
SWZERSG2	8050614	SKRSKYS64	8142604	SPARTN7W	8430302	STNSONL5	8630210	SUPAC LA	8730204		
SWZERSG2	8051404	SKRSKYS64	8142620	SPARTN7W	8430102	STNSONL5	8630212	SUPAC LA	8730206		
SWZERSG2	8051604	SKRSKYS76	8143006	SPARTN7W	8430206	STNSONL5	8630214	SUPAC LA	8730208		
SWZERSG2	8051606	SKRSKYS76	8143007	SPARTN7W	8430208	STNSONL5	8630214	SUPAC V	8730302		
SWZERSG2	8050301	SKRSKYS76	8143010	SPARTN7W	8430210	STNSONL5	8630602	SUPAC V	8730306		
SWZERSG2	8050902	SKRSKYS76	8143010	SPARTN7W	8430210	STNSONL5	8630604	SUPAC V	8730306		
SWZERTG3A	8050902	SLINDS100	0140202	SPERTHCIRROS	38019VC	STNSONM2	8630702	SWALOWSWALLOW	8760102		
SEMCO 30	8070504	SLINDS100	0140208	SPERTHCIRROS	38019VC	STNSONM7	8630702	SWALOWTP	8760202		
SEMCO CLINGER	8070802	SLINDS100	9550102	SPERTHJANUS	3802002	STNSONM8	8630802	SWRNGNSA226	8780122		
SEMCO MARKV	8071802	SLINDS100	9550104	SPERTHJANUS	3801923	STNSONR10	8631604	SWRNGNSA226	8780405		
SEMCO T	8071701	SLINDSB	0144306	SPERTHJANUS	3801925	STNSONR10	8631608	SWRNGNSA226	8780405		
SEMCO TC4	8071408	SLINDSB	0144308	SPERTHJANUS	3801950	STNSONR10	8631614	SWRNGNSA226	8780406		
SEMCO TC4	8071409	SLINDSB	4571008	SPERTHJANUS	38019VD	STNSONR10	8631616	SWRNGNSA227	8780603		
SIODX 60	8250102	SLNSBYKITE	8320102	SPERTHJANUS	38019VF	STNSONR10	8631620	SWRNGNSA227	8780610		
SIODX 90	8250106	SLNSBYT45	8320304	SPERTHJANUS	38019VG	STNSONR5	8631102	SWRNGNSA227	8780620		
SIREN C30	8270302	SLNSBYT49	8321008	SPERTHJANUS	38019VJ	STNSONR5	8631104	SWRNGNSA227	8780102		
SKRSKYS39	8140502	SLNSBYT50	8320402	SPERTHS	3801933	STNSONR5	8631108	SWRNGNSA26	8780112		
SKRSKYS39	8140504	SLNSBYT51	8320602	SPERTHS	3801939	STNSONR5	8631110	SZD 41	8821641		
SKRSKYS51	8141102	SLNSBYT53	8321508	SPERTHS	3801945	STNSONR5	8631112	SZD 45	8822002		
SKRSKYS52	8141306	SLNSBYT59	8321510	SPERTHS	3801920	STNSONR6	8631202	SZD 48	8821648		
SKRSKYS52	8141308	SMITH 600	1710602	SPERTHVENTUS	3802050	STNSONR6	8631204	TCRAFT21	8850906		
SKRSKYS55	8141602	SMITH 600	1710606	SPERTHVENTUS	3802051	STNSONR7	8631304	TCRAFTD	8850402		
SKRSKYS55	8141603	SMITH 600	8360602	SPORT GEOPEN	3802433	STNSONR7	8631306	TCRAFTD	8850404		
SKRSKYS55	8141604	SMITH 600	8360604	SPTPUZRF4D	8451012	STNSONR8	8631404	TCRAFTD	8850408		
SKRSKYS55	8141605	SMITH 600	8360605	SPTPUZRF5	8451014	STNSONR8	8631408	TCRAFTD	8850410		
SKRSKYS55	8141606	SMITH 600	8360606	SPTPUZRF5	8451016	STNSONR8	8631412	TCRAFTD	8850412		
SKRSKYS58	8141800	SMITH 600	8360608	STAR CAVALR	8480102	STNSONR8	8631416	TCRAFTD	8850414		
SKRSKYS58	8141801	SNAS350	8680800	STAR CAVALR	8480104	STNSONR9	8631502	TCRAFTD	8850415		
SKRSKYS58	8141804	SNINGMIG17	05616B3	STAR CAVALR	8480106	STNSONR9	8631504	TCRAFTD	8850416		
SKRSKYS58	8141806	SNIAS 350	8680801	STATE F	8521004	STNSONR9	8631508	TCRAFTD	8850420		
SKRSKYS58	8141808	SNIAS 350	8680802	STEROSS25	8100525	STNSONR9	8631518	TCRAFTD	8850702		
SKRSKYS58	8141809	SNIAS 350	8680803	STEROSSC7	8100510	STNSONR9	8631526	TCRAFT15A	8850702		
SKRSKYS58	8141811	SNIAS 350	8680804	STEROSSC7	8100512	STNSONR9	8631526	TCRAFT20	8851002		
SKRSKYS58	8141814	SNIAS 350	8680811	STEROSSD3	8100602	STNSONR9	8631802	TCRAFTA	8850202		
SKRSKYS58	8141815	SKRSKYS58	8680813	STEROSSD3	8100606	STNSONR9	8631804	TCRAFTA	8850302		
SKRSKYS58	8141821	SNIAS AS332	8680808	STLOUSC2	7920304	STNSONW	8631902	TCRAFTB	8850304		
SKRSKYS58	8141829	SNIAS AS332	8680809	STLOUSC2	7920304	STOLACUC1	8640202	TCRAFTB	8850306		
SKRSKYS58	8141839	SNIAS AS332	8680809	STLOUSC2	7920304	STOLACUC1	9220102	TCRAFTB	8850308		

## APPENDIX B

SDR AIRCRAFT GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 12 OF 12

SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE	SDR NAME	FAA CODE
TCRAFTBC	8850310	TMPSONNAVION	6150122	UNIVAR415	0420312	WACO	ENF	WACO	9600414
TCRAFTBC	8850314	TMPSONNAVION	6150130	UNIVAR415	0420314	WACO	GC7	WACO	9600608
TCRAFTBC	8850316	TOMCAT	1180816	UNIVAR415	0420316	WACO	GXE	WACO	9600702
TCRAFTBC	8850318	TOMCAT	1181061	UNIVAR415	0420318	WACO	INF	WACO	9600416
TCRAFTBC	8850320	TOMCAT	1181062	UNIVAR415	0420320	WACO	JC	WACO	9600802
TCRAFTBC	8850322	TOMCAT	1181069	UNIVAR415	0420322	WACO	JC	WACO	9600806
TCRAFTBC	8850323	TOMCAT	2390101	UNIVAR415	0420324	WACO	JTM	WACO	9601504
TCRAFTBC	8850324	TOMCAT	2390202	UNIVAR415	0420326	WACO	KNF	WACO	9600418
TCRAFTBC	9230916	TOMCAT	2390204	UNIVAR415	0420328	WACO	P	WACO	9600302
TCRAFTBC	9230920	TOMCAT	2390301	UNIVAR415	0420330	WACO	P	WACO	9600402
TCRAFTBC	9230924	TOMCAT	2390302	UNIVAR415	0420332	WACO	Q	WACO	9600408
TCRAFTBC	9230928	TOMCAT	2390303	UNIVAR415	0420334	WACO	Q	WACO	9600504
TCRAFTBF	8850326	TOMCAT	2390304	UNIVAR415	0420336	WACO	Q	WACO	9601210
TCRAFTBF	8850332	TOMCAT	2390305	UNIVAR415	0420402	WACO	QC6	WACO	9600640
TCRAFTBF	8850336	TRYTEK65	0190406	UNIVAR415	0420502	WACO	QC6	WACO	9600642
TCRAFTBF	8850340	TRYTEK65	0190712	UNIVAR415	0420504	WACO	QC6	WACO	9600644
TCRAFTBL	8850346	TRYTEK65	0190716	UNIVAR415	0420702	WACO	QC6	WACO	9600646
TCRAFTBL	8850350	TRYTEK65	0190920	UNIVAR415	0420722	WACO	QC6	WACO	9600648
TCRAFTBL	8850354	TRYTEK65	0190922	UNIVAR415	0540102	WACO	R	WACO	9600304
TCRAFTBL	8850356	TRYTEK65	0190926	UNIVAR415	0540104	WACO	R	WACO	9600422
TCRAFTTC6	8850102	TRYTEK65	0190928	UNIVAR415	5872014	WACO	RE	WACO	9600902
TEAL TSC1A	8850102	TRYTEK65	0190930	UNIVAR415	5872018	WACO	RE	WACO	9600910
TEAL TSC1A	8960404	TRYTEK65	0190932	VALENT17	9370100	WACO	RPT	WACO	9600340
TEMCO 11A	8890402	TRYTEKCF	0190202	VARGA 2150	5940202	WACO	S3HD	WACO	9601102
TEMCO 11A	8890404	TRYTEKK	0190402	VARGA 2150	5940204	WACO	U	WACO	9600306
TEMCO T35	8890601	TRYTEKK	0190204	VARGA 2150	9350102	WACO	U	WACO	9600404
TEMCO T35	8890502	UNIPRO113	9250302	VARGA 2180	9350104	WACO	U	WACO	9600405
TEMCO TT1	8890502	UNIPRO70	9250202	VARGA 2180	9350105	WACO	U	WACO	9600508
TH55	4471002	UNIPROD145	9250502	VICKER745	9470204	WACO	U	WACO	9600510
THUNDRAX5	05604UK	UNIVACGC1	9230102	VICKER745	9470402	WACO	UC	WACO	9600662
THUNDRAX5	8970100	UNIVACGC1	9230104	VICKER745	9470404	WACO	UC	WACO	9600664
THUNDRAX6	8970102	UNIVACGC1	9230108	VICKER745	9470605	WACO	UKC	WACO	9600808
THUNDRAX6	8970104	UNIVACGC1	9230110	VIKINGS	9520102	WACO	UKC	WACO	9600810
THUNDRAX7	8970105	UNIVACGC1	9230112	VIKINGS	9520104	WACO	UKC	WACO	9600822
THUNDRAX7	8970106	UNIVAR108	9230402	VIZOLAA21	1870101	WACO	UKS	WACO	9600824
THUNDRAX7	8970107	UNIVAR108	9230404	VLGTBWSAGITA	0550201	WACO	UKS	WACO	9600826
THUNDRAX7	8970108	UNIVAR108	9230406	VOUGHTF40	2152608	WACO	UKS	WACO	9600830
THUNDRAX7	8970110	UNIVAR108	9230408	VOUGHTF40	2152610	WACO	UMF	WACO	9600410
THUNDRAX7	8970110	UNIVAR108	9230412	VOUGHTF40	2152616	WACO	UPF7	WACO	9601302
THUNDRAX7	8970120	UNIVAR108	9230414	WACO 9	9600102	WACO	UPF7	WACO	9601304
THUNDRAX8	8970111	UNIVAR108	9230416	WACO AGC8	9600602	WACO	YK	WACO	9600816
THUNDRAX8	8970112	UNIVAR108	9230418	WACO ASO	9601202	WACO	YK	WACO	9600818
THUNDRAX9	8970115	UNIVAR415	0420104	WACO ATO	9601202	WACO	YK	WACO	9600832
TIMM COLEGT	8980102	UNIVAR415	0420202	WACO AVN8	9601402	WACO	YK	WACO	9600834
TIMM N2T	8980202	UNIVAR415	0420204	WACO BSO	9601204	WACO	YK	WACO	9600835
TMP SONNAVION	6150104	UNIVAR415	0420302	WACO CRG	9601001	WACO	YK	WACO	9600838
TMP SONNAVION	6150112	UNIVAR415	0420304	WACO CSO	9601206	WACO	YMF	WACO	9600412
TMP SONNAVION	6150114	UNIVAR415	0420306	WACO CTO	9601214	WACO	YOC	WACO	9600622
TMP SONNAVION	6150116	UNIVAR415	0420308	WACO DSO	9601208	WACO	YOC	WACO	9600624
TMP SONNAVION	6150120	UNIVAR415	0420310	WACO EGC	9600610	WACO	YPF	WACO	9601602





APPENDIX C

SDR ENGINE GROUP NAME  
FAA MANUFACTURER/MODEL CODES

PAGE 2 OF 2

SDR NAME	FAA CODE
WSK PZL	67203
WSK PZL	67204
XENOAHG72	72000

SDR NAME	FAA CODE
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SDR NAME	FAA CODE
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SDR NAME	FAA CODE
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## **APPENDIX D**

### **COMMON ACRONYMS**

<b>ADF</b>	<b>-</b>	<b>Automatic Direction Finder</b>
<b>CG</b>	<b>-</b>	<b>Capability Groups</b>
<b>DME</b>	<b>-</b>	<b>Distance Measuring Equipment</b>
<b>DVFR</b>	<b>-</b>	<b>Day Visual Flight Rules</b>
<b>EFIS</b>	<b>-</b>	<b>Electronic Flight Information Systems</b>
<b>FAA</b>	<b>-</b>	<b>Federal Aviation Administration</b>
<b>FAR</b>	<b>-</b>	<b>Federal Aviation Regulations</b>
<b>GA</b>	<b>-</b>	<b>General Aviation</b>
<b>GAAA</b>	<b>-</b>	<b>General Aviation Activity and Avionics</b>
<b>GPS</b>	<b>-</b>	<b>Global Positioning System</b>
<b>GPWS</b>	<b>-</b>	<b>Ground Proximity Warning System</b>
<b>GS</b>	<b>-</b>	<b>Glide Slope</b>
<b>HSI</b>	<b>-</b>	<b>Horizontal Situation Indicators</b>
<b>IFR</b>	<b>-</b>	<b>Instrument Flight Rules</b>
<b>ILS</b>	<b>-</b>	<b>Instrument Landing System</b>
<b>IMC</b>	<b>-</b>	<b>Instrument Meteorological Conditions</b>
<b>LRNAV</b>	<b>-</b>	<b>Long Range Navigation Equipment</b>
<b>MLS</b>	<b>-</b>	<b>Microwave Landing System</b>
<b>MSL</b>	<b>-</b>	<b>Mean Sea Level</b>
<b>NAS</b>	<b>-</b>	<b>National Airspace System</b>
<b>RNAV</b>	<b>-</b>	<b>Area Navigation Equipment</b>
<b>PAR</b>	<b>-</b>	<b>Precision Approach Equipment</b>
<b>SDR</b>	<b>-</b>	<b>Service Difficulty Reporting</b>

SFAR-38 - Special Federal Aviation Regulation 38

TCA - Traffic Control Airport or Tower  
Controlled Airport

TCAS - Traffic Alert and Collision Avoidance System

VFR - Visual Flight Rules

VHF - Very High Frequency

VMC - Visual Meteorological Conditions

VOR - Very High Frequency Omni-directional  
Radio Range

## GLOSSARY

Active Aircraft--All legally registered civil aircraft which flew one or more hours.

Aerial Application--See Primary Use.

Aerial Observation--See Primary Use.

Air Carriers--The commercial system of air transportation consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

Aircraft Type--A term used in this publication in grouping aircraft by basic configuration: fixed wing, rotorcraft, glider, dirigible, and balloon.

Air Taxi--See Primary Use.

Altitude Encoding--(Automatic Altitude Reporting)--An aircraft altitude transmitted via the Mode C transponder feature that is visually displayed in 100 feet increments on the ground radar scope having readout capability.

Area Navigation (RNAV)--A method of using navigation instruments that allows pilots flexibility to fly direct routes between waypoints or offset from published or established routes/airways at specified distance and direction.

Automatic Direction Finder (ADF)--An aircraft radio navigation system which senses and indicates the direction to a nondirectional radio beacon ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft.

Automatic Pilots--The roll, pitch, and yaw axis of an aircraft can be controlled by use of an automatic pilot. Information from VOR, ILS, MLS, and other navigation aids can be coupled to the automatic pilot for en route and approach flights.

Business Transportation--See Primary Use.

Commuter Air Carrier--See Primary Use.

Distance Measuring Equipment (DME)--Airborne and ground equipment used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

Executive/Corporate Transportation--See Primary Use.

General Aviation--That portion of civil aviation which encompasses all facets of aviation except air carriers.

Glide Slope--See Instrument Landing System.

Instructional Flying--See Primary Use.

Instrument Flight Rules (IFR)--Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

Instrument Landing System (ILS)--A precision instrument approach system which normally consists of the following electronic and visual aids:

- o Localizer--Provides course guidance to the runway.
- o Glide Slope--Provides vertical guidance during approach.
- o Marker Beacon--Provides aural and/or visual identification of a specific position along an instrument approach landing.

Localizer--See Instrument Landing System.

Long Range Navigation (LRNAV)--A method of navigation that permits navigation over long distances. This is in contrast to the relatively short range navigation provided by the VOR system.

Marker Beacon--See Instrument Landing System.

Microwave Landing System (MLS)--An instrument landing system operating in the microwave spectrum which provides lateral and vertical guidance to aircraft having compatible avionics equipment.

Other--See Primary Use.

Other Work Use--See Primary Use.

Personal/Recreation Flying--See Primary Use.

Primary Use--The use category in which an aircraft flew the most hours. The eleven use categories are defined below:

- o Aerial Application--Agriculture, health, forestry, cloud seeding, firefighting, insect control.
- o Aerial Observation--Aerial mapping/photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, sightseeing (not FAR Part 135).
- o Air Taxi--FAR Part 135 passenger and cargo operations, excluding commuter air carrier.
- o Business Transportation--Individual use of an aircraft for business transportation.

- o **Commuter Air Carrier**--Performs, under FAR Part 135, at least five scheduled round trips per week or carries mail.
- o **Executive/Corporate Transportation**--Company flying with a professional crew.
- o **Instructional**--Flying under the supervision of a flight instructor (excludes proficiency flying).
- o **Other**--Experimentation, R&D, testing, government demonstrations, air shows, air racing.
- o **Other Work Use**--Construction work (not FAR Part 135), helicopter hoist, parachuting, aerial advertising, towing gliders.
- o **Personal/Recreation**--Flying for personal reasons (excludes business transportation).

**Radar Altimeter**--Aircraft instrument that makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

**Registered Aircraft**--Aircraft registered with the Federal Aviation Administration.

**RNAV**--See Area Navigation.

**Transponder**--The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Beacon System that automatically receives radio signals from interrogators on the ground and selectively replaces with specific reply pulse-on-pulse group only those interrogations being received on the mode to which it is set to respond. Each aircraft transponder is capable of replying to 4,096 codes as selected by the pilot. Provides the air traffic controller positive location and, in some cases, altitude information.

**VFR Flight**--Flight conducted in accordance with Visual Flight Rules.

**VHF Communications**--Provides radio voice communications between aircraft and ground stations, also between aircraft. Very High Frequency (VHF) is limited in angle (line of sight) and usually used for air traffic communications.

**VOR**--Very high frequency omnidirectional radio range. Used as the basis for navigation in the National Airspace System.

**Weather Radar**--Provides the flight crew with visual display of weather that could contain turbulence. The system's primary function is to assist in turbulence avoidance, although most airborne radar systems are also capable of terrain mapping.